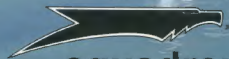


BRISTOL BLENHEIM in action



Aircraft Number 88
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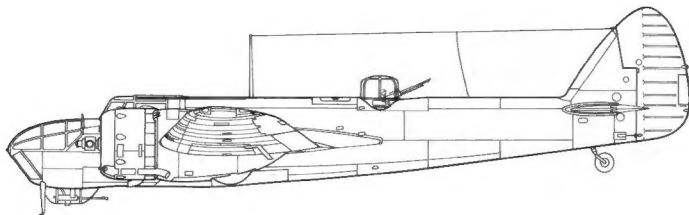
BRISTOL BLENHEIM

in action

By Ron Mackay

Color By Don Greer

Illustrated By Perry Manley



Aircraft Number 88
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A Blenheim Mk IV of No 226 Squadron, No 2 Group attacks a merchant ship during an anti-shipping strike off the Dutch coast on 20 August 1941. Numerous anti-shipping missions were flown by the squadrons of No 2 Group as part of *Channel Stop*, the RAF campaign to close the English Channel to German shipping.

"Bristol"

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A Blenheim Mk IV of No 139 Squadron warms up its engines on a snow covered airfield in France during December of 1939. The wavy camouflage demarcation line was later changed to a nearly straight line. The small 'window' behind the nose canopy is an early form of 'nose art'; a photo of a nude women taped to the fuselage side.



Introduction

At 1100 on 3 September 1939 the British Prime Minister, Neville Chamberlain, announced over BBC radio that Great Britain was at war with Nazi Germany. A half hour prior to this broadcast a single aircraft of No 139 (Jamaica) Squadron had taken off from Wyton in Southeast England to carry out a photographic reconnaissance mission against the German Fleet at Wilhelmshaven. This first operational mission flown by the Royal Air Force in World War II was undertaken by Flight Officer McPherson along with his air-gunner and a Naval observer in a Bristol Blenheim Mk IV. The next day Blenheims of Nos 107, 110 and 139 Squadrons launched a bombing raid against Wilhelmshaven, the first of thousands of operations that would take place over the next six years. The success of this mission against the *Kriegsmarine* at Wilhelmshaven was limited, however, the high losses suffered by the Blenheim squadrons was all too real. This experience was to recur with depressing frequency for Blenheim units over the next two to three years. Whether used in high level bombing or low level anti-shipping strikes, both from the United Kingdom and Mediterranean bases, success was gained only at the cost of heavy losses in both aircraft and crews. The harsh truth learned from these operations was that the Blenheim had been surpassed by events and a rapidly advancing technology.

When first flown in 1935 the Blenheim was capable of evading or out distancing the fixed undercarriage biplane fighters then in service. In the four years between design and combat, however, the monoplane fighter had come into service and the Blenheim was found to be incapable of evading or fighting off the *Luftwaffe* Bf 109s and Bf 110s. Additionally the inevitable increase in weight brought by the addition of gun turrets, radios, and bombing equipment had not been offset by increased engine power and performance had suffered.

The small number of aircraft available during these early years brought home the expression "too little, too late" which was heard with increasing frequency as the war progressed. This same situation also existed in the Far East where Blenheim units were mauled by Japanese fighters such as the Mitsubishi A6M Zero. In the Middle East, the Blenheim played a vital role in the initial fighting as the only modern bombing platform available to the RAF.

The Blenheim was not the only victim of overconfidence based on its initial performance. By the mid-1930s the principles of aerial combat had advanced little from the tactics and principles developed as a result of the air fighting during the First World War. The majority of RAF aircraft were biplanes and consequently the gains in speed and firepower demonstrated by later monoplane fighter designs were as yet unheard of. One of the ironies of aviation design technology during the 1930s was that the first monoplane designs were multi-engined bombers rather than single-engined fighters.

Consequently when the Bristol Blenheim first flew, its performance was primarily measured against the two main RAF fighters then in service, the Hawker Fury biplane and its contemporary, the Gloster Gladiator. Dangerously misleading performance figures resulted; figures that showed the Blenheim capable of evading fighter interception. This basic misconception of bomber performance was not confined to British aircraft. German bombers such as the German Do 17 and He 111 were flown in combat during the Spanish Civil War where their opponents were largely biplane fighters. The bombers success in evading interception blinded the *Luftwaffe* to the lack of defensive firepower on their aircraft. Additionally, it was felt that, because of their speed, the bombers did not need fighter escorts. These misconceptions would later cost the *Luftwaffe* heavy losses to RAF fighters during the Battle of Britain.

Originally, the Bristol Blenheim was not created as a bomber or with the RAF in mind. During 1933 Frank Barnwell, the Chief Designer at Bristol, announced a proposal for a high-speed light passenger aircraft, the Bristol Type 135. The Type 135 was envisioned

as a low-wing monoplane capable of carrying up to eight passengers within an all metal cantilever stressed skin fuselage, powered by two 500 hp nine cylinder Bristol Aquila I sleeve-valved air cooled radial engines. By 1934 work on the design had advanced to the fuselage mock-up stage and it was decided to display the mock up at the 1935 *Salon Internationale de L'Aeronautique* in Paris.

During this period Lord Rothermere, the owner of the *Daily Mail* newspaper began to express an interest in the design as a means of establishing a network of non-stop flights between the major cities of Europe. This service was intended to be for business executives rather than the general public and the eight passenger Type 135 seemed ideal for the project.

The Type 135 had an anticipated top speed of 180 mph, however, the aircraft lacked sufficient range to meet Lord Rothermere's requirements. As a result changes were proposed which included reducing the fuselage cross section to reduce drag and replacing the 500 hp Aquila engines with 640 hp Bristol Mercury VI air cooled radial engines. Design work on the prototype, designated the Bristol Type 142, commenced during April of 1934 with Lord Rothermere as the principal source of funding. Bristol, however, had learned of government plans to expand the RAF and, with an eye toward possible military contracts, funded a parallel design of the Type 143 as a private venture.

The Type 142 prototype made its maiden flight on 12 April 1935, powered by two 640 hp Mercury VI air cooled radial engines driving fixed pitch, four blade propellers. The main undercarriage retracted backward into the engine nacelles with the openings covered by streamlined doors attached to the front of the undercarriage legs. The chisel shaped nose and cockpit Perspex panels gave the pilot an excellent forward and downward view. The low mounted wings were equipped with large trailing edge flaps which greatly reduced the takeoff and landing runs.

The prototype's overall performance proved to be even better than anticipated with a top speed of over 300 mph. This speed is believed to have been the major factor that prompted the British Air Ministry to propose to Lord Rothermere that the Type 142 prototype be loaned to the RAF for testing. Lord Rothermere's response was to donate the prototype to the RAF. The prototype had been given the civil registration G-ADCZ (although this was never actually applied to the aircraft), however, it was better known by the name Lord Rothermere had bestowed upon it, the *Britain First*. When delivered to the RAF research airfield at Martlesham Heath during June of 1935 the aircraft bore the

The natural metal prototype Bristol 142 'Britain First' (K7557) was displayed at the 1935 RAF Hendon Display. The aircraft has had its civil markings replaced with the military serial K7557 painted in Black on the rudder and fuselage sides, type 'A' RAF roundels, and a Black number '6' on fuselage.



experimental marking R-12 on the fuselage side. This was superseded in July by the RAF serial K7557 carried on the fuselage and fin (the civil registration G-ADCZ was officially cancelled in October).

Flight tests conducted at Martlesham Heath revealed a speed of 285 mph with a maximum load and top speed of 307 mph. Discussions between Bristol and the Air Ministry now centered around adapting the Type 142 prototype to the bomber role. In August of 1935 the Air Ministry issued Specification B28/35 which covered modification of the Type 142 to a three man bomber under the Bristol designation Type 142M. The specification was followed in September by an initial RAF order for 150 aircraft under the service designation Blenheim Mk I.

To convert the Type 142 to the bomber role the wing was raised from the low wing position to the mid-wing position to make room for an internal bomb bay. The pilot and bomb aimer were housed in the re-configured nose section which was widened to accommodate the bomb aimers position on the starboard side of the cockpit. Additional Perspex panels were added to the underside of the nose for the bomb sight. Defensive armament was to consist of a single power operated dorsal turret on the fuselage spine just behind the wing trailing edge. The turret was of Bristol design and incorporated a single .303 Lewis, or later Vickers K, machine gun. A second .303 Browning machine gun was fixed in the port wing leading edge and fired by the pilot. This weak defensive armament reflected the official thinking that engagements with opposing fighters would rarely if ever occur. This view apparently failed to take into account the performance of new monoplane fighters such as the Supermarine Spitfire and Hawker Hurricane which were then being built as prototypes, or for reports of a new fighter, the Messerschmitt Bf 109, being built in Germany.

Other changes incorporated into the Type 142M included repositioning the tailplane to a higher position on the rear fuselage and increasing the overall tailplane span. The spatted tailwheel sported by Type 142 *Britain First* was replaced with an unfaired retractable tailwheel. The airframe was internally strengthened to withstand the increased weight of the bomb load and other military equipment installed.

The first production Blenheim Mk I (K7033) served as the development prototype and was delivered to the RAF at Martlesham during June of 1936. The prototype was powered by two Mercury VI-S2 engines driving De Havilland-Hamilton three blade variable pitch propellers. At one point during the test program the propellers were fitted

The Bristol Type 143 prototype runs up its engines during a ground test under the watchful eye of the ground crew. The Type 143 was developed in parallel to the Type 142 as a private venture by Bristol and featured a lengthened nose and longer undercarriage doors.



The prototype Bristol 142 takes off on a test flight during July of 1936. The original transport role of the Bristol Type 142 'Britain First' prototype is evident from the large passenger windows in the fuselage and faired tailwheel.

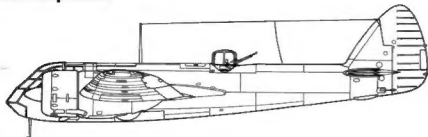
with spinners, however, these were removed when tests revealed no improvement in performance. The prototype made its first flight on 25 June 1936 and as a result of flight tests it was decided to replace the Mercury VI-S2 engines with 850 hp Mercury VIII air cooled radials with controllable cowling gill flaps on subsequent production aircraft. The maximum weight of the Blenheim I was 11,000 pounds, 2,000 pounds heavier than the Type 142 prototype yet it obtained a maximum speed of 281 mph, just twenty-six mph slower than the *Britain First*.

When testing was completed in December of 1936 the RAF ordered full scale production of the Blenheim Mk I and awarded Bristol an additional production contract for 434 aircraft. Bristol was also authorized to pursue contract negotiations with friendly foreign governments, provided any subsequent orders be filled after fulfilling the initial RAF contracts.

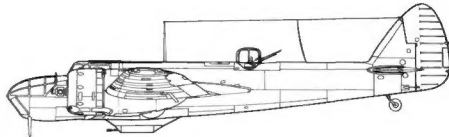
The first Blenheim Mk I off the production line served as the prototype for flight tests. Initially the aircraft was equipped with propeller spinners, however, these were deleted on production aircraft. The prototype was natural metal with Type 'A' RAF roundels and all lettering in black.



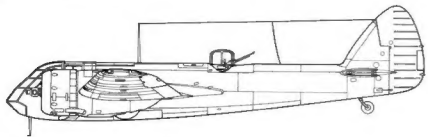
Development



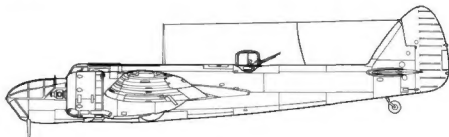
Mk I First Production



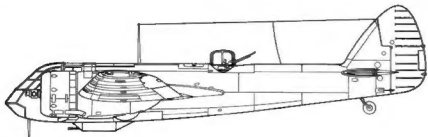
Mk IV F



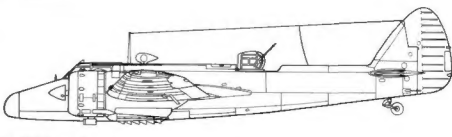
Mk I



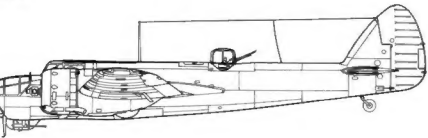
Bolingbroke



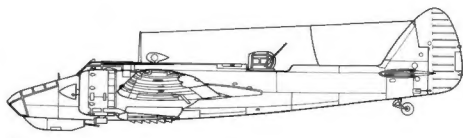
Mk I F



Mk V (Bisley I)



Mk IV



Mk V

Bristol Blenheim Mk I

Beginning with the fifth production aircraft, changes dictated by the flight tests of the first four production aircraft were fully incorporated into the production line. The production standard Blenheim Mk I differed from the prototype in having the Mercury VI-S2 engines replaced by 850 hp Mercury VIII engines housed in nacelles equipped with controllable cowl gill flaps, the landing light on the starboard wing was deleted, and the retractable tail wheel was replaced by a fixed tailwheel.

Initial deliveries of production Blenheim Mk I to RAF squadrons began in March of 1937. The first aircraft (K7036) to be delivered, however, proceeded no further than the end of the runway at Wyton, home base of No 114 Squadron. A combination of a grass runway, an inexperienced pilot, and locked brakes caused the bomber to flip over onto its back totally destroying the aircraft. Despite this mishap No 114 Squadron was fully re-equipped with new production Blenheim Mk I by the Summer of 1937. By the end of 1937 four additional RAF squadrons, Nos 45, 90, 139, and 144 had completed conversion to the Blenheim Is. Under the RAF general expansion plan another twelve squadrons were to be formed or re-equipped with Blenheims during 1938. Numerous RAF exercises confirmed the performance figures published for the prototype in speed, bomb load (1,000 pounds), and range (1,125 miles).

Blenheims operating within Bomber Command carried a crew of three: pilot, navigator/bomb aimer, and air gunner. The pilot sat on the port side of the cockpit with one instrument panel mounted directly in front of him and a second panel mounted to his left. The compass was mounted low on the port side of the panel with the engine throttles and propeller pitch controls mounted on a console level with and to the port side of his seat. This layout, combined with the floor positioning of the hydraulic controls, led to a number of accidents when pilots mistakenly selected the wrong control while flying on instruments.

Access to the cockpit and nose section was made through a large sliding hatch directly above the pilot seat. A folding seat for the navigator was positioned on the starboard side of the cockpit alongside the pilot for use during takeoffs and landings. The air gunner, who until 1940 had no official status as an aircrewman, entered the aircraft through an entrance hatch on the fuselage spine just ahead of the Bristol Mk I (or II) dorsal turret. The semi-retractable turret could be raised to improve the field of fire of the single .303 Lewis machine gun or lowered to reduce drag while cruising outside the combat zone. Unlike the pilot and navigator, air gunners were subject to the full range of normal ground duties when not flying.

The transition from biplane bombers with fixed undercarriage, fixed-pitch propellers, and no flaps to the Blenheim with its retractable undercarriage, variable-pitch propellers, and flaps inevitably led to problems for squadrons re-equipping with the Blenheim. Difficulties were often encountered from the adjacent positions of the flaps and undercarriage levers. Inadvertent retraction of the flaps instead of the undercarriage on takeoff could easily result in a stall often with fatal results. A takeoff attempt with propellers in 'coarse' pitch instead of the required 'fine' pitch usually resulted in the aircraft running off the end of the runway. Loss of engine power on takeoff or landing required instant but smooth correction, while the Blenheim's tendency to swing to port on the takeoff was difficult to counter even with full power on both engines.

Between March of 1937 and August of 1939 sixteen Bomber Command squadrons were equipped with the Blenheim Mk I. These squadrons were spread between Nos 1, 2, and 5 Groups. Between March of 1938 and May of 1939 at least seven squadrons were transferred to airfields in Norfolk and Suffolk where they would form the backbone of No 2 Group. No 5 Group remained in Lincolnshire, however, three of its four Blenheim



Early production Blenheim Mk I is undergoing final assembly at the Bristol Filton production facility. The aircraft were camouflaged at the factory in Dark Green and Dark Earth upper-surfaces over Flat Black undersurfaces with Type A1 roundels and Black serials.

Engine Cowlings

Blenheim Mk I
Prototype

Propeller
Spinner

No Gill Flaps

Blenheim Mk I
Production

Propeller
Spinner
Deleted

Cowling Gill Flaps

squadrons converted to Hampden bombers between February and May of 1939, while No 62 Squadron was destined to deploy to Singapore immediately after the war began. By the time war was declared in September of 1939, only Nos 104 and 108 Squadrons were equipped with Blenheim Mk Is and both were being switched to the training roles within 6 Group. No 18 Squadron was briefly equipped with the Mk I, however, it too was shifted to the training role within 6 Group before seeing action.

Shadow Factory Production

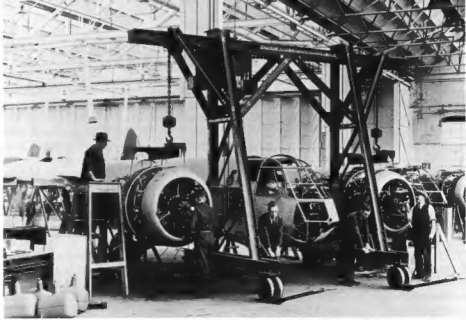
Under the 'shadow factory' concept, first introduced during 1935/36, the production effort for the Blenheim Mk I was dispersed with the bomber being built by three different companies. There were two major advantages to the 'shadow factory' concept; the overall production burden on the parent manufacturer was lessened allowing it to pursue development work; and secondly the chance that a single enemy attack could halt production was eliminated. If enemy bombers knocked out one plant, production would continue at the others and deliveries of aircraft and spare parts would be uninterrupted.

In contrast to later Blenheim production, Bristol built the majority of Blenheim Mk Is. Some 650 airframes were built for the RAF, while a further forty-four were built for export (twelve to Finland, thirty to Turkey, and two to Yugoslavia). The two aircraft exported to Yugoslavia were supplied as pattern machines for license production by the Ikarus factory at Belgrade, where a further forty-eight aircraft were produced. These Blenheims, along with an additional twenty-two Mk Is imported from Britain, were on strength with the Yugoslav Air Force (YAF) when Germany attacked during April of 1941. The three YAF Blenheim squadrons were active attacking a range of targets, from enemy armored columns to industrial targets in Austria and Hungary during the course of the brief campaign. The YAF Blenheims suffered extremely high losses both in the air and on the ground with the surviving aircraft being handed over to the pro-Axis Croatian Air Force after the Yugoslav government surrendered.

Finland acquired license rights for production of both the Blenheim airframe and its Mercury engines at the State Aircraft Factory at Tampere during April of 1938. Finnish built Blenheims were modified with a widened bomb bay to accommodate the wider diameters of American and Swedish made bombs. A number of Finnish Mk Is were equipped with ski undercarriage in place of the normal undercarriage for operations from snow covered airfields. A total of fifty-five aircraft were built by the Finns between 1941 and 1944. These were reinforced by additional aircraft delivered from RAF stocks and others that were diverted from the Bristol production run. The Blenheims diverted from Bristol were also modified with the enlarged bomb bay prior to delivery.

Under the 'shadow factory' scheme, A.V. Roe and Company Ltd manufactured 250 Blenheims, of which ten were exported to Finland, thirteen to Rumania, and twenty-two to Yugoslavia. Production at Avro continued until March of 1940 when the company terminated Blenheim production.

The third producer of the Blenheim was Rootes Securities Ltd at Speke. Rootes produced a total of 318 airframes of which 250 ultimately emerged from the assembly line as Blenheim Mk Is. As with Bristol and Avro, a number of Rootes built aircraft were supplied to foreign air forces with Greece receiving two and Rumania twenty-two. A further sixty-eight airframes were later modified to Mk IV configuration while still on the assembly line under the designation Blenheim Mk IVL. Rootes completed its assigned production allotment just prior to the outbreak of WW II.



Bristol Mercury engines are winched into position to be mated to the wing center section of a Blenheim Mk I at the Bristol factory. The engines were brought from their assembly point by a mobile engine transporter frame which was capable of transporting and aligning both engines at the same time.

Blenheim PR Mk I and Mk II

To meet various RAF requirements, Bristol undertook development of several one of a kind modifications of Blenheim Mk I airframes. One was a specialized photographic reconnaissance variant of the Blenheim under the designation Blenheim PR Mk I with

A freshly painted early production Blenheim Mk I is towed into a hangar at the Bristol plant. The large white serial number painted on the underside of the starboard wing was repeated in reverse on the port wing underside.





(Above) This Blenheim Mk I (K7035) crashed at Wyton on 10 March 1937 while being delivered to No 114 Squadron, the first squadron to re-equip with the Blenheim Mk I. The aircraft flipped over on landing when the pilot locked the brakes, totally destroying the bomber.

(Right) Outfitted for high altitude flight, an RAF air gunner prepares to board a Blenheim Mk I using the three hand and foot holds installed on the fuselage side. The semi-retractable Bristol Mk I dorsal turret with its single .303 Lewis machine gun is in the fully raised position.

(Below) An early production Blenheim Mk I of No. 90 Squadron carries the pre-war identification codes consisting of the squadron number and individual aircraft letter on the fuselage side in Yellow. The aircraft serial number on the fuselage side is in Black and was repeated on the rudder.





Two Blenheim Mk I's prepare for takeoff from the Bristol field at Filton on a delivery flight to Finland during the Summer of 1937. Blenheims produced for Finland were modified with larger bomb bays to accommodate the larger diameter American and Swedish bombs used by the Finnish Air Force.

Bristol modifying one airframe (L1348) to serve as the prototype. The wingspan was reduced by three feet with the wingtips being squared off, the dorsal turret was removed, all openings carefully taped over, and the nose Perspex panels faired over. The DH-Hamilton propellers were replaced with Rotol constant speed propellers and engine power was boosted. As a final measure to improve performance, a highly polished low drag Sky Blue 'camotint' finish was applied in place of the normal camouflage. Tests revealed a top speed of 296 mph at medium altitude which, while an improvement over

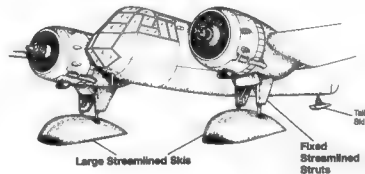
Two of the Blenheim Mk I's delivered to Finland between June of 1937 and July of 1938. The aircraft in the foreground has been fitted with retractable ski undercarriage consisting of light weight skis mounted on the undercarriage legs in place of the normal wheels.



This Finnish Blenheim Mk I (BL-104) was modified with large streamlined fixed ski undercarriage for operations from snow covered airfields. The national insignia was a Medium Blue swastika carried in a White circle.

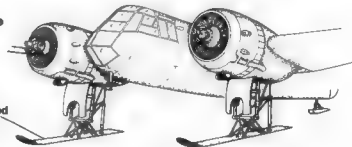
Finnish Ski Landing Gear Blenheim Mk I

Fixed
Skis



Retractable
Skis

Small
Lightweight
Skis Attached
To Landing
Gear Legs





Ground crewmen crank the inertia starter to start the port engine of a Blenheim Mk I in Finland during the Fall of 1944. Finnish Blenheim Mk I's had a pair of protruding landing lights on the port wing and a trailing antenna mast mounted on the lower rear fuselage.

the standard Mk I, was felt to be insufficient for an unarmed reconnaissance aircraft and further development was cancelled.

Bristol had been studying ways to increase the range and payload of the Blenheim Mk I and modified one airframe (L1222) to serve as a prototype for the projected Blenheim Mk II. The wings were modified with additional internal fuel tanks in the outer wing panels and external bomb racks capable of carrying one 250 pound bomb

BL-173, a Blenheim Mk I of the Finnish Air Force in service during the early 1950s. Finland retained their Blenheims for second line duties well into the 1950s. From the additional antennas on the fuselage underside and spine, it is believed this aircraft was modified for airborne testing of navigational aids.

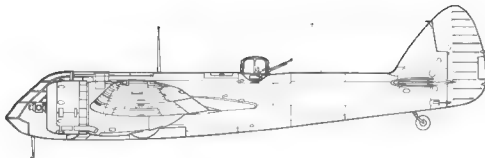


A line-up of Blenheim Mk I's supplied to the Turkish Air Force between March and June of 1938. The national markings consisted of a White bordered Red square on the wings with a White crescent and star on a Red rudder. These aircraft were delivered camouflaged in Dark Green uppersurfaces over Sky Blue undersurfaces.

were mounted between the fuselage and engine nacelles. To counter the increased weight of the fuel and bombs, the undercarriage structure was strengthened. Tests with the prototype revealed that top speed had been reduced to 236 mph making the projected Mk II even more vulnerable to fighters. Based on these test results, further development of the prototype was suspended and the Mk II project finally cancelled

This Blenheim Mk I (L1222) served as the prototype for the projected Mk II variant and was modified with underwing bomb racks mounted between the fuselage and engine nacelles. Flight tests carried out at the Aircraft and Armament Experimental Establishment (A&A.E.E.) revealed that the added weight severely restricted performance.





Specifications

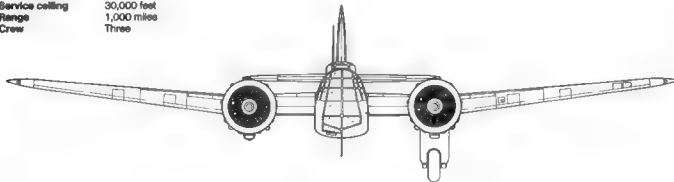
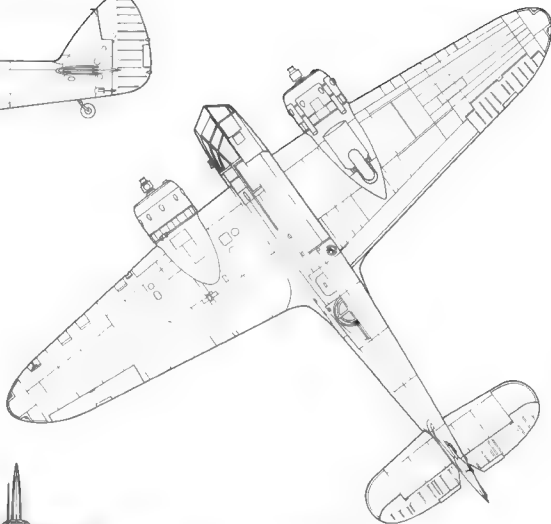
Bristol Blenheim Mk I

Wingspan	56 feet 4 inches
Length	39 feet 9 inches
Height	9 feet 10 inches
Empty Weight	7,408 pounds
Maximum Weight	12,030 pounds
Powerplants	Two 840 hp Bristol Mercury VIII radial engines

Armament	One .303 Browning machine gun in port wing. One .303 Vickers 'K' machine gun in Bristol B Mk III dorsal turret. 1,000 pound internal bomb load
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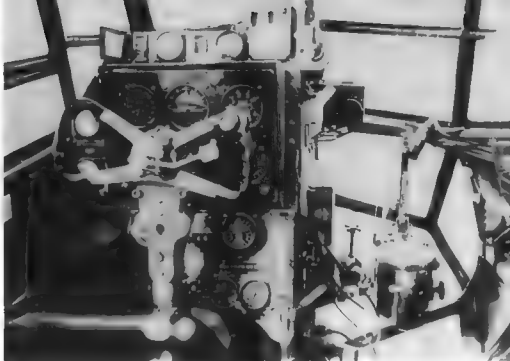
Performance

Maximum Speed	279 mph
Service ceiling	30,000 feet
Range	1,000 miles
Crew	Three





(Below) This Blenheim Mk I (L1348) was modified during 1940 to serve as the prototype for a projected Blenheim high speed photo reconnaissance aircraft under the designation Blenheim PR I. The dorsal turret was removed and the wings were shortened with the wingtips squared off. Despite these modifications the aircraft was too slow and the project was abandoned.



(Above) The cockpit of the Blenheim Mk I reveals that the pilot had a good range of forward and downward vision. Prominent among the cockpit instruments is the compass located below and to the left of the instrument panel and bomb sight located at lower right.

(Left) An instructor gives RAF apprentice armorers a lesson on the internal workings of the Bristol Mk I turret and its .303 Lewis machine gun using a fuselage section mock up of a Blenheim Mk I.

(Below) A ground crewman delivers parachutes to the crew of this Blenheim Mk I of No 44 Squadron at RAF Waddington. The Light Series bomb racks under the rear fuselage could carry a total of eight 20 pound practice bombs used on training missions.



Combat

RAF Combat operations with the Blenheim Mk Is were almost totally confined to overseas theaters of war such as the Middle and Far East. The Italian Declaration of War found five Blenheim squadrons in Egypt, three at Aden on the Southern tip of the Red Sea, and one in Iraq. Bombing raids against the Italians in North Africa were immediately launched, however, operations both here and in East Africa (where the enemy outnumbered the British by ten to one) were sporadic until late 1940.

In December of 1940, GEN Wavell launched a surprise assault against the Italians and within a few weeks had driven them back into Cyrenaica. Both Blenheim and Wellington bomber squadrons were active during the assault, bombing both enemy army encampments and important strongholds such as Tobruk and Benghazi. Four Blenheim units, Nos 11, 30, 84, and 113 Squadrons, which had been detached to Greece in October of 1940 were reinforced by No 211 Squadron in March of 1941. The squadrons operated under extremely primitive conditions and were unable to mount an effective bombing campaign. The situation in Greece, however, was dramatically altered by the intervention of the German *Wehrmacht* in April of 1941. Sustained bombing raids by the *Luftwaffe* on RAF airfields now added to the heavy losses in the air. By the latter part of April, RAF units had pulled back to the island of Crete from which (with the exception of 30 Squadron) personnel and surviving aircraft were withdrawn to Egypt. No 30 Squadron remained on Crete and was destroyed during the German invasion of the island in May of 1941.

In North Africa the Italians were reinforced by the *Deutsches Afrikakorps* (DAK) under GEN Erwin Rommel. Within days of their initial landings the Germans launched a counter-offensive which steadily forced the British Eighth Army back into Egypt. The Blenheim squadrons on hand attempted to blunt the enemy advance, however, they were now opposed by *Luftwaffe* Messerschmitt BF-109Es which inflicted heavy losses on the obsolescent bombers.

Unhindered by *Luftwaffe* fighters, the Blenheim units assigned to the campaign against the Italians in East Africa were more successful. Blenheims of Nos 8, 11 and 39 Squadrons had assisted in halting the initial Italian advance between June and December of 1940 and when the British counter-attacked, these squadrons were heavily committed to support the offensive. During the course of the fighting, No 11 Squadron withdrew to convert to the later Blenheim Mk IV and 39 Squadron was re-equipped with the Martin Maryland. By the time of the Italian surrender in May of 1941, No 8 Squadron was the sole remaining Blenheim Mk I unit in East Africa.

During the opening phase of the war in North Africa and the Middle East, the Blenheim Mk I had been the only modern bomber available to the RAF. It was not until mid-1941 that the RAF began replacing the Bristol bomber with more advanced aircraft, such as the Vickers Wellington, Martin Maryland, and Martin Baltimore.

When war erupted in the Far East on 8 December 1941, the RAF had two Blenheim squadrons, Nos 34 and 62 in Malaya, and one squadron, No 60, in Burma. When the war broke out, however, most of No 60 Squadron's twelve Blenheim Mk Is were at Kuantan in Malaya for training with only a few aircraft having been left behind in Burma.

The majority of the Blenheims never got off the ground, being destroyed at their North Malayan airfields during the first day of combat. A surprise Japanese air raid on Alor Star destroyed eleven of the twelve Blenheims assigned to 60 Squadron. The sole remaining airworthy Blenheim, flown by Flight Lieutenant A.S. K. Scarf, took off and made a lone attack on the Japanese landing barges off Singora. During the attack F/LT Scarf was mortally wounded and after the war was posthumously awarded the Victoria Cross. By the end of December the remaining personnel of No 60 Squadron were transferred back to Burma.



Squadron personnel and their mascot pose in front of a line up of Blenheim Mk Is of No 90 Squadron. Squadron identification code letters (TW) have replaced the earlier squadron number on the fuselage sides and Type B roundels have replaced the earlier Type A1 roundels.

A German soldier surveys the wrecks of a Blenheim Mk I of No 53 Squadron and two Hawker Hurricane fighters at an aircraft 'boneyard' in Northern France in June of 1940. These aircraft were deliberately wrecked by RAF personnel to prevent them from falling into enemy hands when they could not be evacuated back to England.



As the Japanese advanced, the surviving aircraft of No 34 Squadron desperately attempted to slow the enemy columns and disrupt the Japanese supply lines, suffering heavy losses to Japanese fighters. During January of 1942 No 225 (Bomber) Group was formed in Sumatra with reinforcements from the Middle East and the survivors of Malay, however, by this stage of the Battle for Malaya the Blenheim Mk I had virtually disappeared from service.

The Japanese attack on Burma started on 25 December 1941 with several air raids on Rangoon. No 60 Squadron, operating alongside the newly arrived No 211 Squadron, immediately went on the offensive and bombed the Japanese air base at Bangkok, Thailand. The lack of replacement aircraft, coupled with the need to temporarily withdraw No 211 Squadron for re-equipment, forced the RAF to scale down its bombing effort. By March of 1942, No 45 Squadron had deployed to Burma from the Middle East and began operating out of Magwe as part of 'X' Wing (now known as 'Burwing'). The squadron, escorted by ten Hawker Hurricane fighters, attacked the Japanese air base at Mingaldon, however, the Japanese counter attack was immediate and devastating, with over 200 bombers attacking Magwe destroying most of the Blenheims on the ground.

With the end of RAF operations in Burma, the Blenheim Mk I had virtually disappeared from first line service. A small number of aircraft remained in training and second line squadrons, however, first bomber squadrons had re-equipped with later variants of the Blenheim or other more advanced bombers such as the Bristol Beaufort, Douglas Boston, Martin Maryland, and other Lend-lease aircraft arriving from America.



A line-up of Blenheim Mk I of No 45 Squadron on an airfield in North Africa during 1940. The aircraft are camouflaged in Dark Earth and Middle Stone upper surfaces over Black undersurfaces while the fuselage squadron codes are Light Grey and the individual aircraft letter is visible.

An RAF armorer loads small bomb containers into the bomb bay of a desert based Blenheim Mk I. Blenheims in the Mediterranean theater often had the inner or all four bomb bay doors removed, although the reason for this practice remains obscure.



A Blenheim Mk I of No 45 Squadron flies over mountainous terrain in either Greece or North Africa during late 1940/early 1941. The aircraft carries a name painted on the port side nose panel and a rearview mirror on the canopy framing above the cockpit.





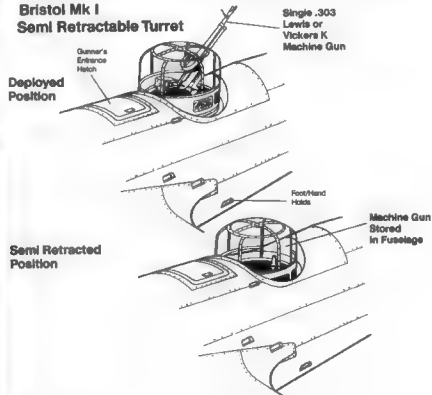
THE OLD 'UN, a weathered Blenheim Mk I, was flown some 350 miles back to base by Acting Sergeant Ian Blair after his pilot was killed, earning him the DFC. The Vokes air filter on the engine nacelle was the primary modification made to Blenheims for desert operations.

A pair of Blenheim Mk Is of No 60 Squadron based at Ambala in India carry Vokes air filters on the engine nacelles. No 60 Squadron later transferred to Burma deploying a detachment to Malaya just prior to the Japanese attack in December of 1941.



This Blenheim Mk I (L4829) of No 60 Squadron suffered an engine fire which burned through the nacelle and engine mounts. The aircraft was repaired and returned to operations, however, in January of 1942 the aircraft was declared missing in action over Malaya.

Bristol Mk I Semi Retractable Turret



Blenheim Mk IF Fighter

The Blenheim Mk IF resulted from an RAF Fighter Command requirement for a long range escort fighter to accompany bombers deep into enemy territory. To meet the requirement, Bristol modified a production Blenheim Mk I (L1424) to the fighter configuration to serve as the prototype for the Blenheim Mk IF. The only external difference between the Mk I bomber and Mk IF fighter was the addition of a shallow belly pack housing four fixed forward firing .303 Browning machine guns and 2,000 rounds of ammunition. The gun pack was mounted under the forward fuselage in the area normally taken up by the bomb bay. The weight of the gun pack was less than a full bomb load and its shallow depth produced little drag, having almost no effect on overall performance. The gun packs were manufactured by the Southern Railway Company at Ashford, Kent, who produced a total of 1,375 gun pack kits.

Seven RAF Fighter Command squadrons were equipped with the Blenheim IF between late 1938 and September of 1939, all based around London or in Central England. Initial deliveries of the Blenheim Mk IF were to No 25 Squadron at Hawkinge. The squadron used the Mk IF in the night fighter role along with Nos 29 and 604 Squadrons. Four additional squadrons were quickly converted to the Blenheim Mk IF, Nos 23, 64, 600, and 601. These squadrons immediately began training in both day and night flying as well as undertaking North Sea convoy patrols during the Winter of 1939/40.

Occasional long range strikes against targets in Germany were undertaken during late 1939/early 1940. In November of 1939 Nos 23 and 601 Squadrons conducted a low level strafing attack on the Borkum seaplane base in northwest Germany. During the initial German advance into Holland in May of 1940, No 600 Squadron attacked a number of Ju 52 transports on the ground at Waalhaven airport, losing five of the six aircraft dispatched on the raid. These operations served to highlight the vulnerability of the Blenheim Mk IF when faced with determined single engine fighter opposition. The Blenheim Mk IF was too large, slow, and unmaneuverable to face the BF 109s of the *Luftwaffe*.

Three other squadrons including Nos 92, 145 and 222 Squadrons were equipped with the Blenheim Mk IF for a short period relinquishing them in the Spring and Summer of 1940, as did Nos 64 and 601 Squadrons. All five units were undoubtedly happy and relieved to convert from the slow Blenheim Mk IF to the faster, more heavily armed Spitfires and Hurricanes.

Night Operations

During the Fall of 1938 the RAF began giving serious consideration to the problems of defending the United Kingdom at night. Visual sighting of an intruding aircraft at night was all but impossible even under ideal weather conditions and radar sets had not yet been developed to the point that they could be carried on board an aircraft. Consequently British scientists began a program aimed at developing and perfecting radar equipment which was small enough to be carried by a multi-engine aircraft. With airborne radar, night fighters would be able to intercept and destroy *Luftwaffe* bombers on the darkest night.

During the Blitz of 1940, four Blenheim Mk IF squadrons, Nos 23, 25, 29, and 604 Squadrons, were in combat against steadily increasing *Luftwaffe* night raids. The Blenheim MK IF was by now badly outmoded in the night fighter role, however, it was the only aircraft available with the internal space necessary to carry the 600 pound Airborne Intercept (AI) radar and its operator. Radar equipped Blenheim Mk IFs were configured with a radar transmitter antenna mounted on the tip of the nose, azimuth receiver anten-



A Blenheim Mk IF fighter of No 25 (F) Squadron carries a gun camera pod under the nose and the White arrowhead shaped unit insignia of No 25 (F) squadron on the fin. This Blenheim was destroyed in a takeoff accident at Northolt on 17 December 1939.

This pair of Blenheim Mk IFs of No 92 (F) Squadron at Croydon airfield during 1939 have not yet been fitted with the underfuselage four .303 machine gun pack. The Blenheim Mk IF proved to be unsuitable as a long ranged day fighter and the squadron converted to Supermarine Spitfires in early 1940.



nas mounted on each engine nacelle just ahead of the wing leading edge and elevation receiver antennas mounted above and below the port wing. By the height of the Blitz six squadrons were operational with radar equipped Blenheim Mk IFs

Initial tests of the AI radar under combat conditions were somewhat discouraging. The radar operator had difficulty discerning the target on the radar screen's hazy and misleading presentation, making accurate calculations of its position relative to his own aircraft nearly impossible. Even when the target 'blip' was clear, there were often large margins of error in height and direction. Development work on the AI radar continued and by the Winter of 1940/41 most of its major faults had been eliminated.

The first successful night interception by a Blenheim IF night fighter occurred on the night of 2/3 July 1940 when a Mk IF of the Fighter Interception Unit (FIU) at Ford intercepted and shot down a German DO-17Z bomber. The performance of the Blenheim IF, however, was far from adequate and successful night interceptions were the exception rather than the rule. The Blenheim lacked the speed to make more than one pass on an enemy bomber and the firepower to ensure that the target was destroyed on a single pass, if successfully intercepted.

By the late Summer of 1940 the improved AI radar was mated with the Bristol Beaufighter and throughout the Winter of 1940/41 Beaufighters began replacing the Blenheim Mk IF in most night fighter units. By May of 1941 the last Blenheim IF unit, No 68 Squadron, had received its first Beaufighters ending the career of the Mk IF in the night fighter role. As they were replaced as night fighters, many radar equipped Blenheim Mk IFs were used for night intruder operations over France, attacking German bomber bases at night.

Overseas use of the Blenheim Mk IF is believed to have been confined to Nos 27 and 30 Squadrons. No 27 Squadron was equipped with the Mk IF in early 1941 and moved from India to Singapore where it was decimated during the Battle for Malaya after flying

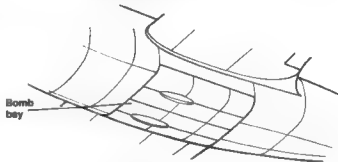
A trio of Blenheim Mk IFs of No 601 (F) Squadron on dispersal at either Hendon or Biggin Hill during September of 1939. The aircraft in the foreground has the outline Winged Sword insignia of 601 (F) Squadron on the fin and the individual aircraft identification letter, 'B', repeated on the port side nose panel.



A Blenheim Mk IF of No 23 Squadron warms up its engines on the snow covered apron at RAF Wittering during the Winter of 1939/40. The underfuselage four gun pack contained both the guns and 2,000 rounds of .303 ammunition.

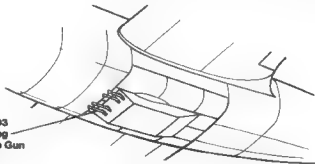
Ventral Gun Pack

Blenheim
Mk I



Blenheim
Mk IF

Four .303
Browning
Machine Gun
Pack





The crew of this No 29 (F) Squadron Blenheim Mk IF board their aircraft for a night fighter mission during late 1940. The light underside color and angular camouflage demarcation is unusual on a night fighter. The wire extending from the fuselage roundel is the IFF (Identification Friend or Foe) antenna wire.

a relatively few missions. No 30 Squadron was based in the Egyptian Canal Zone in June of 1940 and operated as a mixed fighter/bomber unit with both the Blenheim Mk I and Mk IF. The squadron later transferred to Greece where it operated until withdrawn to Crete in May of 1941. The unit spent its last days with Blenheims involved in the defense of Crete. Both squadrons were later reformed with Beaufighters and Hurricanes respectively.

At least nine other RAF squadrons operated the Blenheim Mk IF between 1939 and 1940, however, most had to be re-equipped with more modern aircraft by mid-1940. The exception was No 219 Squadron which continued to operate the Mk IF for many months after all other units replaced their Mk IFs.

This overall Flat Black Blenheim Mk IF night fighter of No 54 Operational Training Unit on a training sortie during September of 1940 carries Mk III AI yagi radar antennas mounted above and below the port wing and on the tip of the nose.

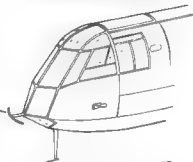


This Blenheim Mk IF served with four different squadrons before being withdrawn from service and assigned as a maintenance training airframe during mid-1942. It previously served as a night fighter with Nos 600 and 252 Squadrons and a crew trainer with Nos 2 and 3 Operational Training Units before being retired.

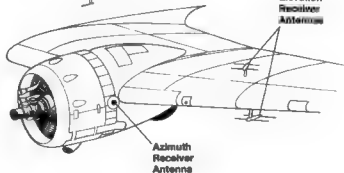
Mk III Radar Antennas

Blenheim Mk IF
Night Fighter

Transmitter
Antenna



Elevation
Receiver
Antenna



Azimuth
Receiver
Antenna

Blenheim Mk IV

The Blenheim Mk IV was not, as is often thought, an extension of the Blenheim Mk I program. The Mk IV evolved from the Bristol Type 149 which was developed in response to British Air Ministry Specification 11/36. Specification 11/36 called for an interim Coastal Command reconnaissance bomber to bridge the gap between the obsolescent Avro Anson and the Bristol Type 152 torpedo bomber (which became the Bristol Beaufort). At this time the Lockheed Hudson was not under consideration for entry into RAF service, however, selection of the Hudson during 1939, along with the relatively successful introduction of the Beaufort during 1939/40, allowed for the Type 149 to be released to RAF Bomber Command under the designation Bolingbroke I.

When the Bristol Type 149 mock up was unveiled in October of 1936 it revealed a distinctive extended nose section (although not in its definitive form) which would later become the primary recognition feature of the Blenheim Mk IV. The fuselage was stretched three feet and the canopy extended over the entire length ending in a sharply raked nose. When examining the mock-up, Bristol Chief Test Pilot C.F. Uwins commented that the additional glazed area ahead of the pilot created glare and reflections that were thrown back into the pilot's eyes and the extended canopy led to distortions that were unacceptable.

The navigator's position in the extreme nose was equipped with a plotting desk (a feature absent in the Mk I) mounted in a fixed location on the port side, while the bomb sight was mounted on the starboard side. To correct the visual distortions created by the long canopy, the nose was modified with a conventional windshield being added just ahead of the pilot. The navigators canopy was lowered and now curved gently downwards to meet the top of the bomb-aiming Perspex panel. Initially the new nose canopy was a smooth hemisphere, however, in an effort to further increase pilot vision during takeoff and landing, the port side of the canopy was lowered creating a scalloped appearance.

There were to be delays in the development of the Type 149 prototype which were directly tied to similar delays in the Beaufort program which centered around the choice of suitable engines. These delays persuaded the British Government to proceed with an order for Lockheed Hudsons in mid-1938 — a decision which would later be fully justified by the Hudson's sterling service in Coastal Command.

The Type 149 prototype was a Blenheim Mk I airframe (K7072) modified to Type 149 standards. A second similar airframe (L1222) was also modified to test the intended fuel system proposed for production Type 149s. Internal fuel capacity was increased by the installation of a 94 gallon fuel tank in each outer wing panel, virtually doubling the normal operating range. The 840 hp Mercury VIII engines of the Mk I were replaced with 995 hp Mercury XV air cooled radials driving De Havilland three blade variable pitch propellers. These changes, however, increased maximum weight to between 14,500 and 15,000 pounds, which created an aerodynamic problem on takeoff. At maximum weight, the aircraft could not be landed safely without the risk of a stall, making a go-around on takeoff a dangerous situation. In order to alleviate this problem the outboard wing fuel tanks were equipped with fuel jettison pipes mounted under the wings, outboard of the engines and ahead of the wing trailing edge. In the event of an aborted takeoff, fuel could be quickly dumped to lower the landing weight to within safe limits.

By mid-1938 these various changes had been cleared for production by the RAF. Bristol had determined that production of the Type 149 could be initiated immediately without disrupting ongoing Blenheim Mk I production. With this assurance the RAF ordered the Type 149 into production under the designation Blenheim Mk IV, discarding the earlier Bolingbroke name. So urgent was the need for rapid deliveries of the Mk IV to RAF squadrons that many of the original production run at Bristol's Filton facility were

delivered without the outer wing tanks installed. These tanks were later installed by teams of Bristol engineers working either on their own or directing RAF maintenance personnel at unit level. A number of early Mk IVs left the production line equipped with Mercury VIII engines despite the planned change to the Mercury XV.

The maximum speed published after service tests of the Mk IV was reported to be 266 mph. This speed, however, was deceptive since it was arrived at from tests conducted at an altitude of 11,800 feet, while the Mk I which had been tested at sea level, reported a speed of 240 mph. In the event, a Mk I at the same altitude was actually slightly faster. This would be fully brought home in combat when the Blenheim Mk IV was found to be no better than the earlier Mk I when faced by *Luftwaffe* fighters. It became obvious that to survive, Blenheim Mk IVs required a fighter escort. When escorts were unavailable, Blenheim daylight operations were restricted to days "when cloud cover gives adequate security..." Sorties were abandoned on days when the cloud cover was less than seven tenths.

Maximum range of the Blenheim Mk IV was increased from 1,125 (for the Mk I) to 1,460 miles, however, the additional weight of the Mk IV had lowered the service ceiling from 27,000 feet to 22,000 feet. The bomb load usually consisted of four 250 pound bombs or two 500 pound bombs for a total internal load of 1,000 pounds. One disconcerting problem with the Mk IV was the propellers. While they were of the variable pitch type, they could not be feathered. If an engine had to be shut down in flight, the windmilling propeller added to the drag on that wing, making control difficult.

Unlike the Mk I the Mk IV was to be produced largely by Rootes at Speke and Avro at Chadderton. Bristol was limited to a total production run of 313 aircraft of which twelve were diverted to the Greek Air Force. Deliveries began in February of 1939 and one aircraft (L4835) from the initial run at Bristol was sent to the Aeroplane and Armament Experimental Establishment (A & A.E.E.) for tests with D/F loop equipment. Two other

Two Bristol employees fill in for the pilot and navigator to demonstrate their respective positions in the wooden Bolingbroke Mk I cockpit mock up. The distance from the pilot to the forward windscreen created unacceptable levels of glare and reflections within the cockpit.





This Blenheim Mk I (K7072) was modified by Bristol with an extended nose to serve as the Mk IV prototype in October of 1937. The original nose canopy pattern caused distortion and unwanted reflections in the cockpit and was later changed. This same aircraft later served as the prototype for the Canadian built Bolingbroke.

aircraft (L4847 and L4857) were used as test beds for improvements that would later be incorporated into Mk IV production; such as a twin-gun dorsal turret and a remote controlled rear firing under fuselage gun position located under the nose. A further six aircraft were modified to carry a ventral gun pack carrying four .303 Browning machine guns and were subsequently delivered to 248 Squadron, Coastal Command for patrol and long range strike fighter duties. An intended modification of four Mk IVs (P4856-4859) to Canadian Bolingbroke standards was abandoned, while P6952 was used to test the first armored dorsal turret.

Avro produced a total of 755 aircraft although the original contract had called for a much higher overall production figure. During the course of Mk IV production at Avro two production runs were reduced by the Air Ministry. Two aircraft (N3544 and N3600) were ultimately delivered to Portugal during 1943 and the final group of five replacement aircraft (AE449-453) were delivered direct to a storage facility during late 1941. Twenty-two Avro built aircraft were also delivered to the Free French Air Force.

Blenheim K7072 after modification to the definitive Blenheim Mk IV nose shape. The nose upper canopy was originally even across the top, however, to improve pilot vision on takeoff and landings the port side was cut down, giving the nose a scalloped shape.

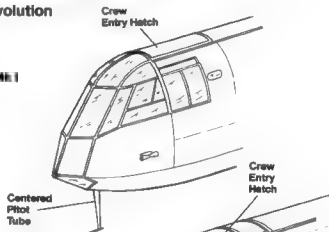


Rootes Ltd was the major contractor of the Mk IV program, building a total 2,230 airframes under six production runs. Four aircraft (R3623, R3830, T2431, and T2434) were diverted to Portugal while the Turkish Air Force received a single aircraft (TI996). Various aircraft for RAF use were modified on the assembly line to carry revised versions of the dorsal and under nose turrets. A further ten aircraft were modified during production with additional armor and delivered to No 248 Squadron, Coastal Command for low level anti-shipping duties.

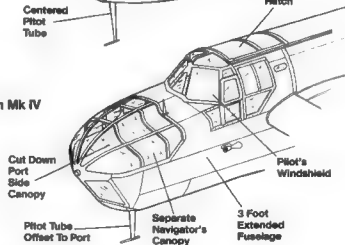
The sole foreign producer of the Mk IV was Finland. The Finnish Air Force had already made good use of the Blenheim Mk I in combat against the Russians both during the Russo-Finnish War of 1939/40 and during the Continuation War of 1941/44. Production of the Mk IV commenced during early 1944 but was suspended in September of that year after ten of the projected fifteen aircraft had been completed. During the course of Blenheim operations in Finland, the Finnish Air Force lost a total of forty-nine Blenheims, twenty-nine in combat and the remainder to accidents. A number of surviving Blenheims remained in Finnish service as trainers and hacks until finally retired during 1957. At least one Blenheim Mk IV aircraft is preserved in Finland and has been put on public display at Luonetjuuri Air Force Base.

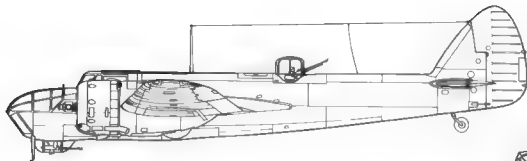
Nose Evolution

Blenheim Mk I



Blenheim Mk IV





Specifications

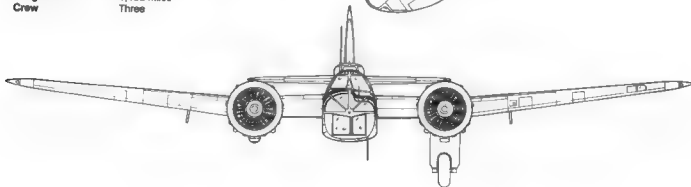
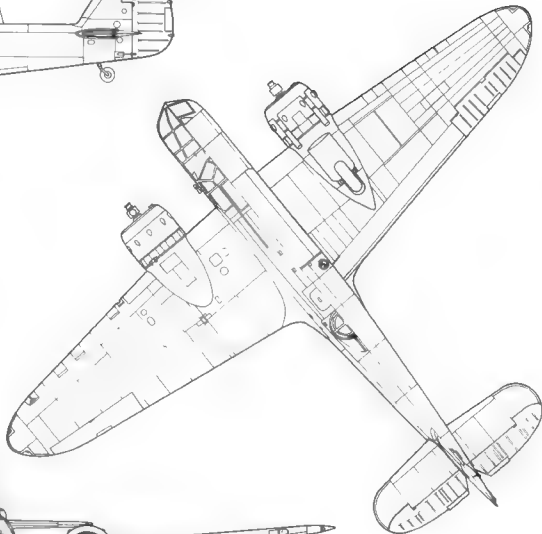
Bristol Blenheim Mk IV

Wingspan	58 feet 4 inches
Length	42 feet 7 inches
Height	12 feet 9½ inches
Empty Weight	7,409 pounds
Maximum weight	15,000 pounds
Powerplant	Two 995 hp Bristol Mercury XV air cooled radial engines

Armament	One or Two .303 machine guns in under nose Frazer Nash FN 54/54A turret. One or Two .303 machine guns in Bristol B Mk III, IIIA or IV dorsal turrets. One .303 machine gun in port wing. 1,000 pound internal bomb load.
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Performance

Maximum Speed	268 mph
Service ceiling	22,000 feet
Range	1,460 miles
Crew	Three





Four early production Blenheim Mk IVs on the Bristol ramp at Filton prior to delivery to an RAF squadron. The aircraft in the foreground has not had its propellers installed yet and is missing portions of the engine cowlings. The pitot tube mast under the nose was relocated from the center position to the port side of the nose on the Mk IV.



A Blenheim Mk IV of No 110 Squadron nosed over on landing at RAF Wattisham in September of 1939. From the lack of damage to the propellers, the engines were probably idling when the pilot locked the brakes causing the aircraft to nose over.

This overall Flat Black Blenheim Mk IV was utilized by the Royal Aircraft Establishment/ Special Duty Flight between late 1939 and May of 1940. On 12 May the crew claimed the first night kill using AI radar, however, the claim (a He 111) was not confirmed. The aircraft crash landed at Martlesham Heath on returning from the mission and was written off.

Two Blenheim Mk IVs of No 40 Squadron taxi out for takeoff at RAF Wyton during early 1940 carrying 20 pound practice bombs on the rear fuselage Light Carrier bomb racks. R3743 (right) later served with No 114 Squadron and was destroyed on an anti-shipping mission on 8 August 1941, while LS402 was retired on 14 March 1941.



European Combat Operations

In the Autumn of 1939, plans were set in motion to station British land and air forces in France. The RAF deployed two separate elements, the Advanced Air Striking Force (AASF) and the Air Component. The War Plan called for AASF units to attack German industrial targets while the Air Component would serve as the direct air support element for the British Expeditionary Force (BEF). When the ten squadrons that made up the AASF were deployed to France they were equipped with the single engine Fairey Battle light bombers, however, in the Fall of 1939, Nos 15 and 40 Squadrons rotated back to England for conversion to the Blenheim Mk IV. These squadrons were replaced by Nos 114 and 139 Squadrons both equipped with the Blenheim Mk IV.

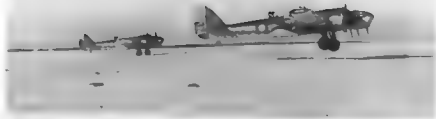
The two squadrons attached to the Air Component, Nos 53 and 59, were already equipped with the Blenheim IV and were soon joined by Nos 18 and 57 Squadrons. These units were initially equipped with Blenheim Mk Is, which were later replaced with Mk IVs as the newer bombers became available.

While the French based Blenheims saw little combat in the first eight months of the war — known as the *Phoney War*, the squadrons of Bomber Command in the United Kingdom were in action almost immediately. Ten Blenheim Mk IVs of Nos 107 and 110 Squadrons were targeted against the German *Kriegsmarine* in the Schilling Roads at Wilhelmshaven. Clouds over the target area allowed the Blenheims to make their approach undetected and they were already into their bomb runs before they were sighted. Unfortunately little damage was inflicted on the German warships by the two 500 pound bombs carried by each of the bombers. The delayed action bombs bounced off the ships to explode harmlessly in the water. Five Blenheims failed to return from the mission and one of these inflicted the heaviest damage to the enemy when it crashed into the cruiser EMDEN. The after action report stated that most losses were caused by heavy German flak over the target.

The majority of RAF Blenheim Mk IV squadrons were assigned to No 2 Group of Bomber Command flying out of East Anglia. From September of 1939 to April of 1940 these squadrons were primarily assigned to anti-shiping operations off the Northwest coast of Germany. These operations were generally uneventful, however, one U-boat was sunk 11 March 1940 when U-31 was struck by two bombs from a Blenheim of No 82 Squadron — the first unsaid U-boat kill by an RAF aircraft in WW II.

With the German advance into Denmark and Norway in April of 1940, Nos 107 and 110 Squadrons sent detachments to Lissiebmouth in Scotland. From here anti-shiping sweeps were launched to intercept and bomb German warships enroute to Norwegian ports. These missions were ineffective in halting the German Navy and there were no reported sinkings. As German forces gained a firm foothold in Norway, the Blenheim squadrons received new orders to attack enemy occupied airfields along the Norwegian coast. *Luftwaffe* fighter interception was inevitable and as the Blenheim crews pressed home their attacks they suffered staggering losses. By the beginning of May the Allied cause in Scandinavia was hopeless and both squadrons returned to their home base at Wattisham in preparation for the expected German Spring offensive.

On 10 May 1940 the Germans launched their main attack through Holland and within a few days were threatening the BEF in Belgium. The BEF had moved up to forward positions in Belgium in accordance with Allied defensive plans, however, a second enemy offensive through the lightly defended Ardennes region split the French and British forces. The BEF now found itself in imminent danger of encirclement and was forced to withdraw, being evacuated via the ports of Calais and Dunkirk.



A pair of Blenheim Mk IVs of the Advanced Air Striking Force (AASF) takeoff on a mission from a snow covered airfield in France during the Winter of 1939/40. The Type A fuselage roundels and the absence of fin flashes are typical of this period although the absence of squadron/aircraft code letters is unusual.

Of the AASF Blenheims units in France, No 114 lost most of its aircraft on the ground when nine Do 17Zs of II/KG 2 made a surprise attack on their airfield, while No 139 Squadron lost seven of nine aircraft on a bombing mission on 12 May, all to Bf 109Es of JG 27.

The five Blenheim units within the Air Component suffered a similar fate as did most of the UK based squadrons committed to action over France. No 15 Squadron lost six out of twelve on 12 May, No 82 Squadron lost eleven of the twelve Blenheims dispatched to Gembloux on 14 May, while on the same day five out of twelve No 110 Squadron aircraft were shot down during an assault on the German salient at Sedan. It became apparent that the defensive firepower of the Blenheim was hopelessly inadequate and the combined firepower of a full squadron formation was unable to discourage enemy fighter attacks. The few available Allied fighter squadrons were widely dispersed and even when in a position to provide cover for the bombers, they were often overwhelmed by superior numbers. The medium altitudes at which bombing runs were conducted also made the Blenheims an inviting target for German flak guns and a number were lost to flak.

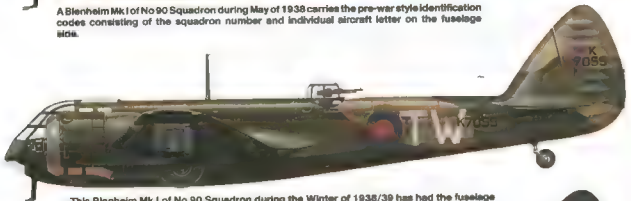
The inadequate defensive firepower of the Blenheim led to a number of field modifications aimed at increasing defensive armament. Wing Commander Basil Embry, commander of No 107 Squadron at Wattisham, modified a number of Blenheims with

A Blenheim Mk IV (L8703) of No 59 Squadron, one of the Air Component units serving in France during 1939/40. The fuselage roundels had the White areas overpainted with Blue to modify them to the Type B standard and the aircraft/squadron identification codes are in Sky Blue. This aircraft was lost when it crashed on landing at Thorney Island on 25 September 1940.

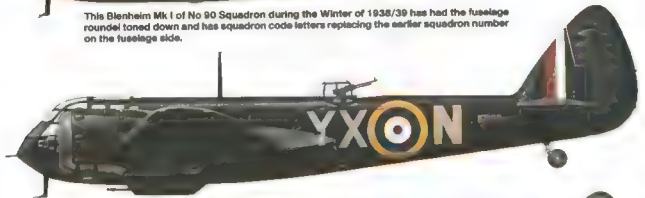




A Blenheim Mk I of No 90 Squadron during May of 1938 carries the pre-war style identification codes consisting of the squadron number and individual aircraft letter on the fuselage side.



This Blenheim Mk I of No 90 Squadron during the Winter of 1938/39 has had the fuselage roundel toned down and has squadron code letters replacing the earlier squadron number on the fuselage side.



An overall Flat Black Blenheim Mk IF night fighter of No 54 Operational Training Unit during the Summer of 1941.



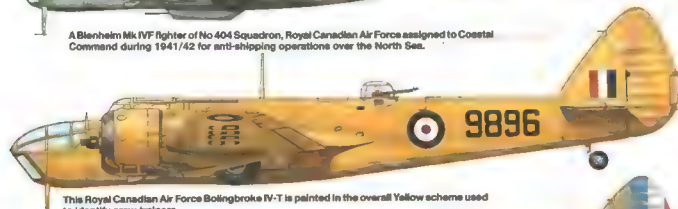
A Blenheim Mk IV of No 40 Squadron used in daylight operations over Occupied Europe during the Summer of 1940.



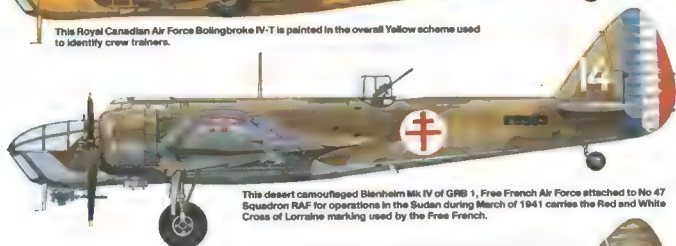
A Blenheim Mk IV of LeLV 42, Finnish Air Force during late 1942. The Finns used both the Blenheim Mk I and Mk IV during the Continuation War against the Russians.



A Blenheim Mk IVF fighter of No 404 Squadron, Royal Canadian Air Force assigned to Coastal Command during 1941/42 for anti-shipping operations over the North Sea.



This Royal Canadian Air Force Bolingbroke IV-T is painted in the overall Yellow scheme used to identify crew trainers.



This desert camouflaged Blenheim Mk IV of GRB 1, Free French Air Force attached to No 47 Squadron RAF for operations in the Sudan during March of 1941 carries the Red and White Cross of Lorraine marking used by the Free French.



The Blaisie Mk I ground attack bomber prototype had the underside of the wings and tailplane painted in Trainer Yellow to identify it as an experimental aircraft.



The Turkish Air Force received a number of desert camouflaged Blenheim Mk Vs from RAF stocks during 1944/45, operating them alongside their surviving Blenheim Mk Is purchased in 1937.

303 machine guns mounted in the rear of the engine nacelles and under the lower tail section. A more official modification involved installing a single hand held machine gun on a gimbal mount in the upper nose canopy for the navigator.

Bristol was aware that the single Lewis .303 machine gun armed dorsal turret was inadequate and had experimented with a turret armed with twin Vickers gas operated 303 machine guns. After the Battle of France, Blenheims began receiving the twin gun Bristol B Mk IIIA turret, while late production Mk IVs were armed at the factory with the Bristol B Mk IV turret fitted with twin belt-fed .303 Browning machine guns. The Brownings, although more prone to jamming, provided a more continuous rate of fire than did the fifty round capacity of the Vickers circular ammunition pans.

To provide for under fuselage defense, Bristol devised an underfuselage turret which was comprised of a single .303 machine gun enclosed in a clear teardrop shaped cover. This mounting was later supplanted by rectangular Frazer Nash FN54 metal framed turret housing twin .303 Browning machine guns mounted on the lower starboard side of the nose. The turret could be jettisoned in an emergency to allow the crew to use the lower fuselage emergency escape hatch.

When first committed to combat, the Blenheim had neither self-sealing fuel tanks or crew armor protection. A number of Blenheims were lost when enemy fire set the wing tanks on fire before the first self-sealing tanks were introduced in early 1940. Initially, because of a shortage of self-sealing tanks, the modification was limited to the main fuel tank, while the outer wing fuel tanks remained non self-sealing.

Another improvement brought about as a result of combat operations was the installation of a rear view mirror on the canopy frame above and ahead of the pilot's line of vision. Additionally, to further aid rearward vision, the side canopy windows were modified with large Perspex bulged blisters.

Circus Operations

In January of 1941 the RAF began a new tactic of attacking German targets in France with Blenheims under heavy fighter escort. This tactic was code named *Circus* and the Blenheims of No 114 Squadron, escorted by nine fighter squadrons, opened this series of attacks with a raid against a German airfield on 10 January. It was hoped that *Luftwaffe* fighters would rise to the bait allowing RAF fighters to engage and destroy them. The Germans, however, soon realized the intent of these operations and turned to stalking and ambushing the bombers whenever the initiative was in their hands.

In the event, *Circus* operations cost the RAF nearly double the losses it inflicted on the *Luftwaffe*. The invasion of Russia in June of 1941 provided added incentive to maintain pressure on the *Luftwaffe* in hopes of drawing strength away from the Eastern Front. The single *Jagdgeschwader* facing the RAF in France, JG 26, was not only able to successfully oppose RAF incursions into France, but was also able to send a detachment of fighters to the Mediterranean. During one raid in August a Blenheim dropped the only recorded non-offensive article dropped during *Circus* operations — a replacement artificial leg for Douglas Bader, the legless RAF fighter Ace who had been shot down and captured a few days earlier.

Channel Stop

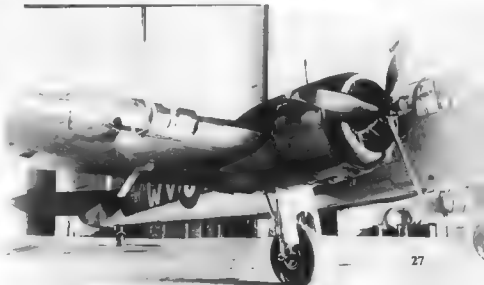
In April of 1941 the RAF attempted to close the Straits of Dover to German convoys during daylight. This operation, code named *Channel Stop*, was a regional variation of the larger scale anti-shipping strikes that had been ongoing off the entire North Sea coast since March. Normally such operations would have been undertaken by Coastal Command, however, Coastal Command was tied down combating the U-boat wolfpacks in the Atlantic. To fill the gap, the Blenheims of No 2 Group were assigned the mission. Sorties were scheduled over the coastal waters off Holland, Denmark, and Norway which became known as 'beats'. The bombers would fly at low level in a rectangular pattern



A ground crewman hands an aerial camera to the crew of a Blenheim Mk IV in France. This aircraft carries an early example of 'nose art' in the form of a photograph of a nude female figure taped to the fuselage behind the nose canopy.

towards, along, and finally away from the enemy coastline. This pattern was designed to surprise any shipping encountered before their defenses could react and hopefully to avoid patrolling fighters.

This Blenheim Mk IV (V5681) survived some nine months of intensive operations in No 2 Group during 1941 while attached to Nos 18 and 139 Squadrons. The aircraft was damaged when it hit part of a ship during an anti-shipping strike on 27 May 1941 and crash landed at RAF Uxbridge.



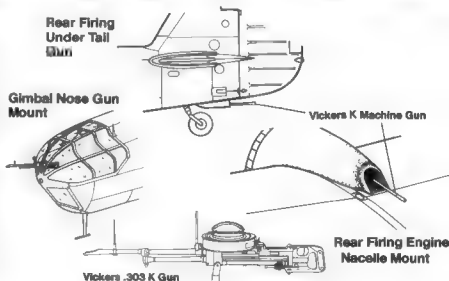


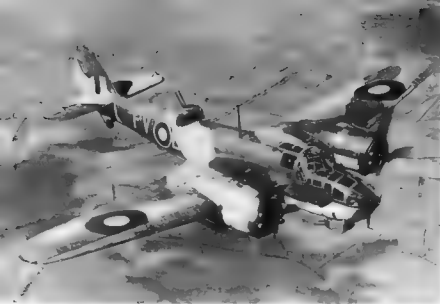
A party from the newly formed RAF Regiment marches past the crew of a Blenheim Mk IV as the pilot briefs his crew for their mission. The aircraft has been modified with a gimbal mounted Vickers 'K' machine gun in the starboard side of the nose canopy for use by the navigator.

The steady increase in flak-ships assigned to German convoys coupled with the inherent risks of low level operations and the ability of the *Luftwaffe* to mount regular fighter patrols over the convoy routes led to a high loss rate among the Blenheim squadrons. *Channel Stop* ended in early 1942 and subsequent examination of the claimed vessel sinkings revealed that the confirmed enemy losses were a quarter of those claimed. The experience gained with *Channel Stop*, however, paved the way for the later formation of anti-shipping Strike Wings. These units, equipped with torpedo and rocket armed Beaufighters and Mosquitoes, had the firepower to overwhelm the flak-ships prior to attacking the then unprotected merchantmen.

Blenheims of No 2 Group were also involved in attacks on Germany proper. On 4 July 1941 twelve Blenheim Mk IVs led by Wing Commander 'Hughie' Edwards of No 105 Squadron bombed the port of Bremen. Despite heavy opposition the bombers hit the target at the cost of four Blenheims shot down. For his actions during the attack Squadron Leader Edwards was awarded the Victoria Cross. On 12 August a force of fifty-four Blenheims crossed almost two hundred miles of enemy territory at low level to attack the power stations at Quadrath and Knapsack outside Cologne. The bombers were escorted by fighters and an involved series of diversions was laid on to draw *Luftwaffe* fighters away from the low flying Blenheims. Carrying two 500 pound bombs each, the Blen-

Armament Field Modifications Blenheim Mk IV





This Blenheim Mk IV of No 13 OTU is armed with the later Frazer Nash FN 54A under nose turret with its distinctive solid metal frame. The FN 54A turret mounted twin .303 Browning machine guns, could rotate 20 degrees to either side and depress 17 degrees to engage targets below the bomber.

Blenheims inflicted moderate damage to the targets, however, ten of the Blenheims were lost to enemy action.

By December of 1941 the advent of superior twin engined aircraft, such as the American built Douglas Boston, enabled Bomber Command to retire the Blenheim Mk IV from active operations over Occupied Europe. These aircraft and their crews had enabled the RAF to carry out offensive operations over Europe for almost two years, but now their place would be taken by newer aircraft that could take the fight to the enemy much more effectively.

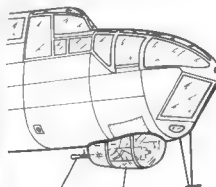
This Rootes built Blenheim Mk IV is armed with the early Browning .303 under nose gun turret which featured a clear Perspex cover over the gun. L8552 was later declared Missing in Action (MIA) while on a mission with No 15 Squadron against a target in France on 18 May 1940.



This Blenheim Mk IV of No 21 Squadron, No 2 Group managed to return to base despite massive damage to the nose and propellers when it struck the ocean during an anti-shipping strike. *Channel Stop* missions were dangerous not only from enemy action but also from the inherent risks of flying over water at low level.

Undernose Remote Control Turrets Blenheim Mk IV

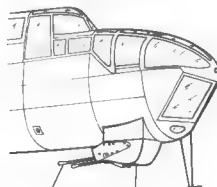
Frazer-Nash FN-54 (Early)



Single
.303 Browning
Machine Gun

Clear
Perspex
Cover

Frazer-Nash FN-54A (Late)



Twin .303 Browning
Machine Guns

Solid Metal
Turret



German troops examine the wreckage of a Blenheim Mk IV of No 107 Squadron on 4 July 1941. The aircraft was lost during a daylight raid on Bremen during which the formation leader, Wing Commander Sir Hughie Edwards, won the Victoria Cross.



The crew of a Blenheim Mk IV of No 82 Squadron leaves their aircraft while a ground crewman directs a second aircraft to its parking spot and a third comes in for a landing after returning from a successful operation over Europe on 29 August 1941.

This Blenheim Mk IV was captured by the *Luftwaffe* and evaluated at the Test and Experimental Center at Rechlin. The aircraft carried full *Luftwaffe* markings to prevent it being fired upon or attacked by 'friendly' forces while undergoing tests.



Three Blenheim IVs of No 40 Squadron fly in a combat Vee formation over England during 1940. No 40 Squadron outlined the individual aircraft letters of their Blenheims in White. The middle aircraft, 'V' for 'Victor' (R36120), was declared missing while on a bombing mission over Ostendon on 9 September 1940.





The Bristol B Mk III turret of the Blenheim Mk IV was armed with a single Vickers 'K' .303 gas operated machine gun. The fuselage sides behind the turret are slightly recessed to allow for greater depression of the gun to either side of the fuselage.

This Blenheim Mk IV of No 13 Squadron crash landed when battle damage jammed the undercarriage. The aircraft has been fitted with the Bristol Mk IV turret with twin .303 Browning machine guns and bulged side cockpit windows first introduced on late production Blenheim Mk IVs to improve rearward vision for the pilot.

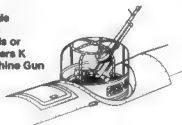


A Blenheim IV of No 105 Squadron flares out for a smooth landing at Swaton Morley during late 1941. The aircraft is armed with a Bristol B Mk IIIA turret with twin .303 Vickers 'K' machine guns and carries Light Series bomb racks on the fuselage underside.

Dorsal Turrets

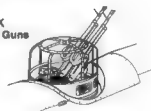
Bristol Mk III

Single
.303
Lewis or
Vickers K
Machine Gun



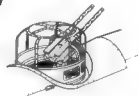
Bristol Mk IIIA

Twin
.303
Vickers K
Machine Guns



Bristol Mk IV

Twin .303
Browning
Machine Guns





(Above) Blenheim Mk IVs attack a German convoy during a *Channel Stop* mission. The Germans often made use of captured ships such as the Danish merchantmen in the foreground. Anti-shipping operations were complicated by the possibility of collisions with the masts and superstructures of the ships under attack.

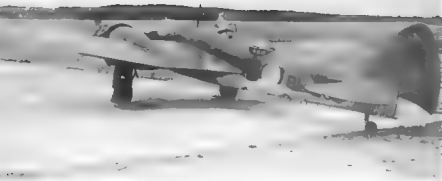


(Above) A Blenheim Mk IV of No 88 Squadron, armed with a gimbal mounted nose gun in the starboard side of the nose canopy, on final approach for landing at Great Massingham during the Spring of 1942 passes the aircraft which will replace it, an American-built Douglas Boston (A-20).



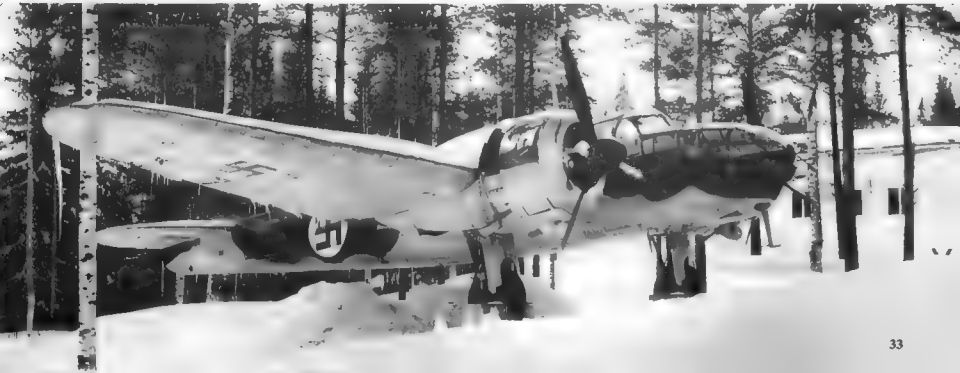
(Below) A squadron formation of Blenheim Mk IVs of No 40 Squadron over the English countryside during the filming of an American documentary film on the RAF, entitled 'March of Time', shot in England during March of 1941. Reportedly the aircraft in the foreground nearly rammed the camera aircraft!





(Above) This post war Finnish Air Force Heinkel He 111 has been modified with extra radio antennas on the underside of the rear fuselage and a direction finder antenna on the fuselage spine in front of the dorsal turret. Post war Finnish markings consisted of a White-Blue-White roundel.

(Below) The sole surviving Finnish Heinkel He 111 now rests on permanent display at the Luonetjärvi military base in Finland. The Finnish Air Force operated the Heinkel until the mid-1950s in the training role, often fitting them with propeller spinners to prevent ice build up during the extremely harsh Finnish winters.



(Above) This preserved Heinkel He 111 has been restored in the wartime markings of No 139 Squadron RAF to represent an operational Heinkel He 111 and is currently on display in the Battle of Britain section of the RAF Museum at RAF Hendon.

The Middle East

Of the nine Blenheim squadrons in the Middle East, only No 113 Squadron at Aden had completed conversion to the Blenheim Mk IVs when the Italians declared war on 10 June 1940. By the end of the year, however, some 100 Blenheim IVs had arrived from the United Kingdom to re-equip the other Middle East squadrons. The aircraft had been sent by sea to Takoradi in West Africa, where they were re-assembled and ferried some 4000 miles across and up Africa to Egypt. This route was used to avoid having to send replacement aircraft through enemy dominated airspace over the Mediterranean.

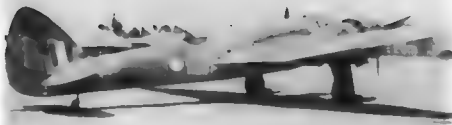
Initial Blenheim Mk IV operations in North Africa were conducted by Nos 45 and 55 Squadrons, although there is evidence that a small number of Blenheim IVs operated with No 11 Squadron in Greece prior to the Allied evacuation. No 203 Squadron based at Habbaniyah in Iraq flew the Mk IV in operations against the short lived pro-Axis revolt of Rashid Ali in April of 1941 and also flew a number of missions against Vichy French units in Syria until their surrender in July.

For the next fifteen months Blenheim Mk IV units based in North Africa were active in providing close air support for the British Eighth Army in its fluid engagements against the *Deutsches Afrikakorps* under GEN Erwin Rommel. Additionally the Blenheim Mk IV was used to equip two Allied units in North Africa, No 342 (Lorraine) Squadron, Free French Air Force and No 11 Squadron, Royal South African Air Force. These squadrons flew alongside RAF squadrons under the operational control of the RAF.

During the North African campaign several squadrons of No 2 Group in Britain deployed detachments to the Mediterranean island of Malta. Lying between Sicily and North Africa, directly across the main enemy convoy routes, Malta provided a base from which to attack Axis shipping supplying Rommel. The Blenheim crews, operating alongside Wellington detachments from Egypt, used a modified form of the tactics used in *Channel Stop*, inflicting heavy losses on Axis shipping. During the latter part of 1941, upwards of 65 percent of Axis merchant traffic was sunk, however, the cost to the RAF in aircraft and crews was staggering. No 107 Squadron lost no less than twenty-four crews (of the twenty-six that deployed to Malta) over a three month period and every commissioned officer assigned to the squadron.

There was only one modification made to the Blenheim Mk IV for tropical use which was the addition of Vokes air filters to the carburetor intakes to combat the abrasive effect of sand and grit on sensitive engine parts. A number of North African Benheims had the inner set of bomb bay doors removed, although the exact reason for this modification is unclear. North African based Benheims were ordered camouflaged in Dark Earth and Light Earth uppersurfaces over Mediterranean Blue undersurfaces, although the order was not fully implemented until August of 1941 and a number of Benheims operated over the desert in their European camouflage.

By late February of 1942 there were few RAF Blenheim IV units left in North Africa because the majority of Blenheim units had been hastily transferred to the Far East following the Japanese attack on Pearl Harbor. The remaining North African and Middle East units now began re-equipping with new equipment in the form of the Douglas Boston (A-20). Once again the Blenheim had filled the gap until more suitable aircraft were available.



This Blenheim Mk IV of No 55 Squadron was based at Fuka Air Base in Egypt during late 1940. No 55 Squadron was one of the first squadrons to re-equip with the Blenheim Mk IV for operations over North Africa as part of the Desert Air Force.

This Blenheim Mk IV carries temporary civil registration code letters for the ferry flight to Greece during the winter of 1939/40. The Greek Air Force received a total of twelve Blenheim Mk IVs before Greece surrendered.





This desert camouflaged Blenheim Mk IV (Z7910) perched on the ramp at El Kabrt, Egypt on 9 March 1943 saw service with No 14 Squadron and No 75 OTU in the Middle East. The aircraft was modified by Avro with Vokes air filters on the carburetor air intakes for service in the desert.



This Blenheim Mk IV (Z9592) at El Kabrt, Egypt has had the dorsal turret removed and carries the desert camouflage of Dark Earth and Middle Stone upper surfaces over Azure Blue undersurfaces. No records have been found to indicate that this Blenheim was ever issued to an operational unit before it was withdrawn from service in July of 1944.

Far East Operations

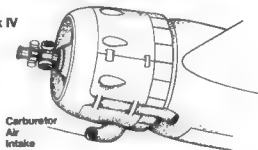
In January of 1942 two Blenheim Mk IV units, Nos 84 and 211 Squadrons, transferred from the Middle East to add their twenty-four aircraft to the marginal strength of No 225 (Bomber) Group in Sumatra, Dutch East Indies. They were joined by the handful of surviving Mk IVs of No 34 Squadron when they evacuated from Singapore. Operating from airfields near Palembang, the Blenheims flew convoy escort, reconnaissance, and bombing missions against their former airfields in Malaya. On 15 February 1942, an attack by all available Blenheims was launched against the Japanese invasion fleet off Sumatra. Although a number of Japanese ships were sunk, the Blenheim units were unable to exploit their success because of a lack of aircraft and personnel.

On 18 February, the Blenheims evacuated to Java, with the few serviceable aircraft left in No 211 Squadron being absorbed into No 84 Squadron. On Java the rapidly diminishing RAF force was used to harass the approaching Japanese invasion fleet. On 1 March, within hours of the Japanese landings on Java, the remaining Blenheims of No 84 Squadron were either destroyed or captured on their airfield at Kalidjati by a surprise Japanese armor attack, ending Blenheim operations in Java.

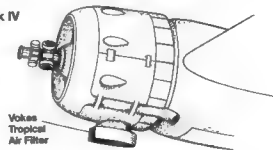
During April of 1942 the Japanese sent a carrier strike group into the Indian Ocean to attack the vital Royal Navy base at Trincomalee on the Island of Ceylon. On 5 April a force of 125 Japanese Navy Val dive bombers, Kate torpedo bombers and an escort of A6M Zero fighters attacked the naval base sinking a number of Royal Navy ships. After the raid, the Blenheim Mk IVs of No 11 Squadron flew search missions far out to sea trying to locate the Japanese carriers. Finally on 9 April, the fleet was located and the squadron launched eleven Blenheims to attack the Japanese. Two aircraft aborted with engine trouble, however, the remaining nine found and attacked the Japanese carrier task group, losing five Blenheims to flak and the Zero fighter combat air patrol. On 11 April the Japanese task force withdrew from the Indian Ocean, ending the Battle for Ceylon.

Vokes Tropical Air Filter

Blenheim Mk IV



Tropical Blenheim Mk IV





This Blenheim IV of No 162 Squadron in the Middle East carries the late Frazer Nash FN54A rectangular rear firing under nose gun turret. After serving with no less than five squadrons in the United Kingdom, this Blenheim (R3844) finished her days in the Middle East flying radar-jamming missions until retired on 1 February 1944.



A Blenheim Mk IV of No 45 Squadron over the desert during 1941 has the bomb bay door removed and carries a bomb load consisting of small bomb containers for 40 pound High Explosive and 4 pound incendiary bombs. The pipes extending down from each wing are the fuel jettison pipes first introduced on the Blenheim Mk IV.

This Blenheim Mk IV (N3589) of No 40 Squadron was captured intact by the Italians on 13 September 1940 after landing in error on the island of Pantelleria. The pilot stated he confused Pantelleria with his intended destination of Malta. The aircraft was repainted in full *Regia Aeronautica* markings and test flown.



Two Blenheim Mk IVs of No 203 Squadron on patrol near the Vichy French controlled airfield of Palmrya in Syria during July of 1941. In a short but successful campaign Commonwealth forces compelled the pro-German Vichy government to surrender, eliminating a possible threat to the Allied cause.





The crew of this Blenheim Mk IV of No 113 Squadron boards their aircraft at Fuka, Egypt in preparation for another ground support mission. The aircraft is equipped with Light Series bomb racks on the underside of the rear fuselage for small anti-personnel bombs.



A desert camouflaged Blenheim Mk IV of the *Forces Françaises Libres* (FFL, Free French Air Force) in North Africa has had the RAF markings replaced with French roundels, rudder stripes, and the Red Cross of Lorraine insignia on the fuselage and wings.

This damaged Free French Air Force Blenheim Mk IV was attached to No 47 Squadron RAF for operations in North Africa. The French applied Blue/White/Red (front to rear) rudder stripes to their Blenheims along with the Cross of Lorraine on the fuselage sides and wing under surfaces.



A flight of three Blenheim Mk IVs of the Free French Air Force over Libya during February of 1942. All three aircraft have had the inner bomb bay doors removed and are fitted with the early under nose rear firing Frazer Nash gun turret.



Blenheim Mk IVF

Like the earlier Blenheim Mk IF, the fighter variant of the Blenheim Mk IV was externally identical to the bomber variant with the exception of the four machine gun pack installed in the bomb-bay position. The gun pack installation itself differed slightly from the earlier Mk IF gun pack, being deeper to give the guns a clear field of fire under the slightly bulged nose of the Blenheim Mk IV. Although the Mk IVF would be used primarily by Coastal Command, the first Mk IVFs were delivered to Fighter Command during the Winter of 1939-1940. The first unit to re-equip with the Blenheim Mk IVF was No 600 Squadron which was engaged in night fighter duties in defense of London. Like the earlier Mk IFs, the Blenheim Mk IVFs assigned to the squadron were modified with early Airborne Interception (AI) radar equipment, however, because of problems with the radar and the poor performance of the Blenheim, few if any German bombers were actually intercepted. Beginning in September of 1940, Blenheim Mk IVFs in Fighter Command were replaced by Beaufighters and the aircraft passed to Coastal Command units.

Coastal Command was the primary operator of the Blenheim Mk IVF, assigning the aircraft to the anti-shipping and maritime escort roles. The first Coastal Command squadron to fully re-equip with the Mk IVF was No 235 Squadron based at Dyce in Scotland (with a detachment deployed to the Shetland Islands). Three other Coastal Command squadrons were also re-equipped with the Mk IVF. No 236 based at Bircham Newton in East Anglia, No 248 at Aldergrove in Northern Ireland, and No 254 operating

out of St. Eval in Cornwall. While No 254 Squadron was almost exclusively engaged in anti-submarine duties, the other squadrons carried out a wide range of duties between June of 1940 and June of 1942. One specific mission assigned to No 235 Squadron was patrolling the Norwegian coast in a effort to detect and then shadow enemy shipping. Any enemy vessels detected would be shadowed by the Blenheim Mk IVF until a strike force of Beauforts and/or Hudsons could be assembled to attack the target.

The Squadrons based in southern England primarily operated in the maritime escort role. Providing air cover for Allied shipping and Motor Torpedo Boat patrols in the Channel and North Sea. Additionally the squadrons acted as escorts for Beauforts and Hudsons engaged in anti-shipping strikes. Another mission undertaken by the Blenheim Mk IVF squadrons were solo fighter sweeps off the enemy coast in search of maritime patrol aircraft. During these missions a number of German patrol aircraft were successfully intercepted and shot down by prowling Blenheim Mk IVFs. A vital role assigned to the Blenheim Mk IVF squadrons was providing air cover for Air Sea Rescue (ASR) launches engaged in the rescue of downed Allied aircrews in the Channel and North Sea. The Blenheim Mk IVF was well suited to this role, having the range necessary for long loiter times over the downed airmen and the firepower to drive off or shoot down any interfering German maritime aircraft.

The failure of both the Blenheim Mk IF and Mk IVF in their intended role of long range escort fighter was due to the rapid advance of aircraft technology between the time

Aircrewmen relax in the grass near six Blenheim Mk IVF day fighters of No 254 Squadron parked on dispersal at RAF Bircham Newton during the summer of 1940. The Blenheims share the field with a Spitfire Mk II and a Wellington bomber.



it was designed (1936) and its operational use (1940-1942). The lack of suitable replacements forced the RAF to continue use of the Mk IVF long after it was realized that the aircraft was totally unsuited to the mission. An example of this was the late 1941 Commando raid on the Lofoten Islands off Northern Norway when No 404 Squadron, Royal Canadian Air Force was dispatched as a long range escort for the bombers which supported the landings.

Another RCAF unit formed on the Mk IVF was No 407 Squadron based at Skitten (a satellite field to Wick), however, their operational use of the Mk IVF would be short lived. By early 1942 Coastal Command was rapidly replacing the Mk IVF with Beaufighters and Mosquitoes and by June of 1942 only two squadrons, Nos 254 and 404 (RCAF) were still flying the Mk IVF. Aircraft withdrawn from operational service were usually passed to various rear echelon units such as Operational Training Units.

Overseas use of the Blenheim Mk IVF was limited to No 203 Squadron in the Middle East. Flying from Aden the unit was active in the maritime escort role, escorting Allied convoys in the Red Sea. During the course of these escorts several Italian SM 79 torpedo bombers were shot down. The squadron was active in both the Ethiopian and Greek campaigns before being withdrawn to Egypt where it was re-equipped with the Martin Maryland as a bomber squadron.

The Blenheim Mk IVF filled the void in the long range fighter/strike role until more adequate aircraft, such as the Beaufighter and Mosquito, were available in quantity.

No 68 Squadron operated a few Blenheim Mk IVF night fighters from Catterick and High Ercall during early 1941. The overall Flat Black camouflage paint used by night fighters weathered rapidly especially around the wing leading edges and engine cowlings.

Gun Packs

Blenheim Mk IVF

Shallow
Gun Pack

Blenheim Mk IVF

Deeper
Gun Pack



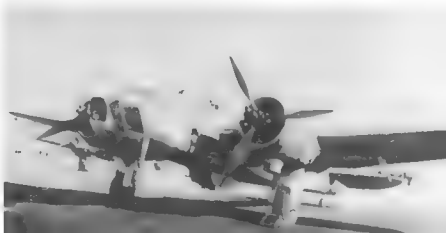


A tight starboard echelon formation of Blenheim Mk IVFs of No 235 Squadron, Coastal Command. The camouflage pattern appears to be similar to the standard Bomber Command scheme, however, a number of aircraft were reportedly painted in Extra Dark Sea Grey and Dark Slate Grey upper surfaces instead of the Dark Earth and Dark Green of Bomber Command.



The underwing fuel jettison pipes identify this aircraft as a Blenheim Mk IV, however, the under fuselage antennas suggests that it is actually a Blenheim Mk IVF fighter without the four gun pack installed in the bomb bay.

A Blenheim Mk IVF of No 203 Squadron parked on the ramp at Khormaksar Air Base, Aden in August of 1940. Blenheim Mk IVs of No 203 Squadron operated against Italian targets while covering the British evacuation from the Sudan. The gun pack on the Mk IVF was deeper than the gun pack on the earlier Blenheim Mk IF.



Bolingbroke

In 1937 the Canadian Government issued a contract for license production of the Blenheim Mk IV to Fairchild Aircraft Ltd under the designation Bolingbroke. The Bolingbroke was externally identical to the Bristol produced Blenheim Mk IV, however, American instruments and other equipment replaced standard British equipment on a number of production aircraft.

Production of the first, of what would be four, Bolingbroke variants commenced during 1939 and comprised a total of eighteen aircraft (Canadian serials 702-719) powered by 840 hp Mercury VIII engines under the designation Bolingbroke Mk I. Deliveries to the Royal Canadian Air Force (RCAF) began on 15 November 1939, with the first aircraft going to No 8 Squadron based at Sydney, Nova Scotia for anti-submarine patrol duty over the Atlantic.

A number of these early production Mk Is were used by Fairchild for experimental and development work. Airframes 702 and 717 were converted to serve as Bolingbroke Mk III prototypes and outfitted with twin Edo floats. The floats were attached to the fuselage, wings, and landing gear attachment points with long streamlined struts. Although successfully tested, no production of the Bolingbroke Mk III was ordered and both aircraft were later reconfigured with conventional undercarriage during 1942.

Airframe number 712 was rebuilt after a crash and used to test the installation of various items of American equipment under the designation Bolingbroke Mk II, while airframes 712 and 718 were modified to serve as dual control trainers.

The next production block of 151 aircraft were designated the Bolingbroke Mk IV (serials 9001-9151) and were powered by 905 hp Mercury XV engines and featured American-built instrumentation and other items of internal equipment. Deliveries of Bolingbroke Mk IVs to the RCAF began in January of 1941. A number of aircraft in this production block were fitted with American built 825 hp Pratt and Whitney Wasp Junior engines driving Hamilton Standard propellers (9005, 9010-9023) as an insurance against the possible shortages of British Mercury engines. In the event no such shortages occurred and the use of the Pratt and Whitney engine was restricted to these few production airframes. To differentiate them from standard Bolingbroke Mk IVs, these aircraft were re-designated Bolingbroke Mk IV-W.

Another airframe (9074) was modified with the 900 hp Wright Cyclone Gr-1820-G3B engine under the designation Bolingbroke Mk IV-C, however, the engine change resulted in no significant improvement in performance and further development was halted. A number of late production aircraft within the Mk IV block were powered by 950 hp Mercury XX engines, while airframe 9086 was test fitted with a ski undercarriage, which became a standard optional feature for Canadian Bolingbrokes.

The last Bolingbroke variant produced was the Bolingbroke Mk IV-T, a general purpose crew trainer built between 1942 and 1943 and mainly powered by the 995 hp Mercury XV engine. This was the largest production run with a total of 457 aircraft being delivered to the RCAF, while a further 51 airframes were built but not taken on charge.

Operational use of the Bolingbroke was limited to the Royal Canadian Air Force in Canada and the Aleutian Islands. No 8 (Bomber Reconnaissance) Squadron was the first RCAF unit to convert to the Bolingbroke, followed by one other squadron. Bolingbrokes were used primarily to fly anti-submarine coastal patrols over both the Atlantic and Pacific.

Two RCAF squadrons were assigned to the combined American-Canadian defense campaign to protect the Aleutian Islands and west coast of Alaska from Japanese attack. No 115 Squadron arrived in the Aleutians in April of 1942 and was assigned anti-



This Bolingbroke Mk I was the thirteenth aircraft off the Fairchild production line during 1940. The Bolingbroke Mk I was identical to the RAF Blenheim Mk IV, although later aircraft were fitted with various American-built instruments and equipment.

submarine patrol and maritime reconnaissance missions. In June of 1942 No 8 Squadron deployed to the Aleutians with twelve Bolingbroke Mk IVs, making a 1,000 mile flight from RCAF Sea Island to Yakutat Island arriving on 3 June. When the squadron arrived it was ordered to paint out the Red centers to the upper wing roundels to prevent confusion with the Japanese 'meatball' insignia. Later additional recognition markings in the form of a fourteen inch blue band was added to the rear of the fuselage. The harsh weather in the Aleutians proved a worse enemy than the Japanese and a number of Bolingbrokes were lost when thick Alaskan fogs obscured mountain tops. Normal bomb loads consisted of three 300 pound depth charges and two aircraft were maintained in an alert status at all times. The squadron is credited with sharing one submarine kill with the US Navy. The Bolingbroke Mk IV piloted by Flight Sergeant P.M.G. Thomas attacked and damaged the Japanese submarine enabling US Navy surface units to later sink it.

The majority of Bolingbrokes produced never saw combat, instead they performed as crew and operational trainers under the Commonwealth Air Training Plan, training crews for overseas units. Still others were converted to unarmed target tugs with high visibility paint schemes for training air gunners and army anti-aircraft gunners.



This Bolingbroke Mk I (serial 717) was modified to serve as the prototype for the projected Mk II variant which featured an Edo float undercarriage. One other Bolingbroke was temporarily converted to floats, although both were later reconfigured with wheel undercarriage.

This Bolingbroke IV-T (8986) carries an overall Yellow color scheme identifying it as a crew trainer. Some fifty Bolingbroke trainers were built during 1942 with a number of aircraft being modified with Boulton Paul 'C' turrets in place of the standard Bristol turret.



The Bolingbroke Mk IV-W was powered by American 825 hp Pratt and Whitney Wasp Junior engines. Fifteen aircraft were built to this standard as a precaution against shortages of Bristol Mercury engines. The bulge on the port engine nacelle was an RCAF modification to allow for internal stowage of a life raft.

This Bolingbroke Mk IV-T parked on the snow covered ramp at St Hubert during 1943 is painted overall Yellow with Black stripes. This high visibility paint scheme was carried by aircraft assigned to target towing duties. The undercarriage covers have been removed as a precaution against ice build up when operating from snow covered fields in northern Canada.



Blenheim Mk V

In January of 1940 the Bristol Company proposed to the RAF, development of a ground support bomber incorporating both bombs and a battery of forward firing machine guns based on the Blenheim Mk IV airframe. The Air Ministry responded to the Bristol proposal in May of 1940 by issuing Specification B6.40 which called for a tactical bomber capable of direct army support with both guns and bombs. To meet the specification, Bristol submitted the Type 149C.S., an upgraded variant of the Blenheim Mk IV with provision for some 600 pounds of armor plate to protect vital equipment and the two man crew during low level attacks. In addition to the standard Blenheim bomb bay, the aircraft would be equipped with a solid nose carrying a battery of four .303 machine guns. Bristol proposed that the powerplants would consist of special low altitude rated versions of the 950 hp Mercury XVI engine utilizing high-octane fuel. The Air Ministry was impressed by the proposal and ordered construction of two prototypes (AD 657 and AD661) under the designation Bisley Mk I.

The withdrawal of the British Expeditionary Force (BEF) from Europe in June of 1940 ended the immediate requirement for an Army close support aircraft and the intended roles for the Bisley were re-evaluated with level bombing being added to the specification. The change in specification led Bristol to develop the prototypes along separate lines with AD657 configured for the close support role with a solid nose and AD661 modified with a bombardier's position to fill the level bombing role.

The prototypes featured a number of external changes from their Blenheim Mk IV predecessor. The most obvious change was in the nose section, with AD657 featuring a solid gun nose with a flatter 'ducks bill' profile, while AD661 had the port side of the nose re-configured with a glazed navigator/bomb aimer's position. Because of the continuous slope of the nose, there was no need to cut down the port side as had been done on the Blenheim Mk IV. The navigator's position on AD661, however, had much less headroom and to solve the problem, a well for the navigator's feet was installed just forward of the port side rear firing twin machine gun under nose gun turret. The well was covered by an extension of the gun turret fairing.

In addition to the under nose gun turret the Bisley was armed with a Bristol BX dorsal turret carrying twin .303 Browning machine guns and a gyro stabilized gun sight. Unlike the earlier Bristol turrets which were faired into circular fuselage cut outs, the BX turret was located at the forward edge of a cut down fuselage center section. The cut down fuselage section was necessary to accommodate the bulkier shape and larger diameter of the turret. Other changes included the mounting of a Direction Finder loop antenna in a clear 'teardrop' Perspex cover just behind the radio mast on the fuselage spine. The radio mast itself was moved forward to a position on the upper fuselage just behind and to the starboard side of the cockpit entry hatch.

The undercarriage was strengthened to handle the increased weight (17,000 pounds) of the Bisley and the wheel well doors were changed to side hinged doors hung on either side of the engine nacelle instead of the single wheel well covers mounted on the front of the undercarriage legs which had been common on all earlier Blenheim variants. Like the earlier Blenheim Mk IV, the tailwheel was non-retractable, however, the tail wheel strut was changed from the nearly straight strut to an 'L' shaped leg with a built in shock absorber.

The oil coolers were moved from the engine to a position in the wing just outboard of the engine nacelle with cooling air supplied through an intake in the wing leading edge. The two prototypes also differed from each other in a number of ways. AD657 was initially fitted with propeller spinners, while AD661 was first flown without a dorsal turret. The first prototype to fly was the solid nosed AD657 which made its maiden flight on 24 February 1941, with the second prototype AD661 following shortly.

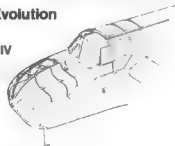


The Blenheim Mk V low level bomber prototype reveals the side hinged undercarriage doors, extended tailwheel support bracket with shock absorber, and relocated pitot tube mast on the underside of the port wing first introduced on the Blenheim Mk V.

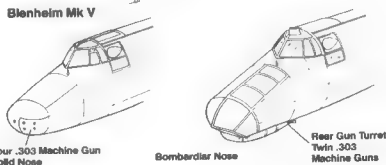
The Air Ministry selected Rootes Securities as the primary contractor for Bisley production with an initial contract for 780 aircraft. This contract was amended in September of 1940 to cover production of both the solid nose and bomber nose variants, with the bomber variant bearing the sub-designation Type 149HA. This was further changed with production aircraft becoming known as the Type 160. Two pre-production aircraft were turned out by Rootes, with the first, DJ702 being delivered to Bristol for inspection during September. Official trials with the prototypes had established that the Bisley Mk I

Nose Evolution

Blenheim Mk IV



Blenheim Mk V



had a maximum speed of 263 mph at sea level at maximum weight of 17,000 pounds. These results were misleading, however, since the prototype was powered by 920 hp Mercury XV engines and production aircraft were scheduled to receive 840 hp Mercury XXV or XXX engines. In effect the Bisley had a greater gross weight with the same power as the earlier Blenheim Mk IV and actual performance suffered.

Production of the Bisley commenced at Rootes in October of 1941 and in November the Air Ministry dropped the designation Bisley in favor of the designation Blenheim Mk V, reasoning that a separate name for an aircraft with the same basic outline as the Blenheim could be misleading. Although the original amended contracts called for a total of 1,195 aircraft this figure was reduced to 942 aircraft, with the final production aircraft being delivered from the Rootes Ltd plant at Blyth Bridge, Staffordshire in June of 1943.

The impending invasion of North Africa in November of 1942 led to the conversion of four RAF squadrons with Blenheim Mk Vs for service in the desert under No 236 Wing. Nos 13, 18, 114 and 614 Squadrons were selected, which undoubtedly did not please the personnel of these squadrons since their contemporaries were converting from the Blenheim Mk IV to the Douglas Boston or DeHavilland Mosquito. In November of 1942 the four squadrons deployed to Cammober airfield in Algeria, some 200 miles from their primary targets at Bizerte, Tunisia.

The squadrons soon moved to forward airfields in an effort to cut down the risks of the long unescorted sorties. On 17 November 1942 No 18 Squadron, while engaged on a ground support mission, was totally destroyed as an effective unit when the twelve aircraft formation was intercepted by Bf 109s of JG 2. Within five minutes the German fighters had shot down the entire formation, with the last aircraft shot down belonging to Wing Commander Hugh Malcolm, who received a posthumous Victoria Cross for the

An early production Blenheim Mk V (AZ990) undergoes testing during the Winter of 1941/42. The distinctive 'duck billed' nose profile of the Mk V gave the pilot a better field of view from the cockpit than the earlier Mk IV. The enlarged Bristol BX turret carried two .303 Browning machine guns.

Dorsal Turrets

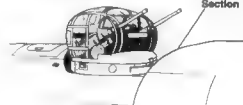
Blenheim Mk IV

Bristol Mk IV
Turret



Blenheim Mk V

Bristol BX
Turret



mission. Blenheim Mk V units remained active in the Army support role, bombing enemy troop concentration, supply lines, and airfields for the next five months until the Axis surrender in May of 1943.

By the end of hostilities in the Desert, Nos 13 and 614 Squadrons still operated the Blenheim Mk V, while Nos 18 (re-formed) and 114 Squadrons had converted to the Douglas Boston. No 13 Squadron continued operations with Blenheim Mk Vs flying coastal patrols from Tunisia until late 1943 when it converted to Lockheed Ventura patrol



bombers, while No 614 Squadron operated from Sicily with Blenheim Mk Vs until February of 1944 when the squadron was disbanded.

Besides the squadrons of No 236 Wing, a number of Blenheim Mk Vs had been ferried out to Egypt during mid-1942 to supplement the Blenheim squadrons within No 201 Group. These aircraft were divided among various squadrons including Free French, Greek, and South African Air Force squadrons. Their duties include coastal patrol, army support, and interdiction of railways. No 15 Squadron, South African Air Force became a component of an anti-shipping Wing, operating alongside a Beaufort squadron and Beaufighter unit. During the later part of the African campaign, the Wing was active in attacking the German sea lines of supply, with special attention being given to tankers. On 26 October 1942, the tanker PROSPERINA was fatally crippled when almost within the safety of Tobruk harbor. One of the first hits on the tanker was from a bomb released by a Blenheim Mk V, however, its wingman collided with a ship's mast and crashed. The successful mission was further marred when two Mk Vs collided on the return flight to base.

Two other Mk V squadrons saw active service in the Middle East; Nos 8 and 244 Squadrons stationed at Aden on the Red Sea. Their primary mission was anti-shipping and anti-submarine patrols in the Red Sea between 1942 and 1944. In the Far East, the four squadrons of No 221 Group based in India and later Burma, operated Blenheim Mk Vs for attacks against Japanese targets, however, by the Fall of 1943 all four squadrons had converted to more modern aircraft.

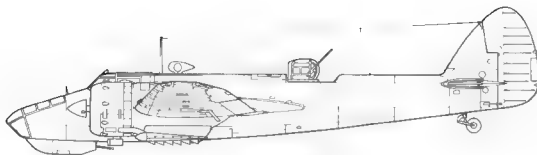
In the United Kingdom, a number of Blenheim Mk Vs remained in operation with Meteorological flights and Operational Training Units as late as July 1945, although the majority of Blenheims had been retired from the active inventory by mid-1944, ending the career of the Bristol Blenheim with the RAF.

(Below) This Blenheim Mk V parked on the field at Foggia Main in Southern Italy during the Summer of 1944 is equipped with Vokes air filters on the carburetor intakes and flame dampeners on the engine exhausts. EH495 was one of the final production batch of Mk Vs and was withdrawn from service on 28 September 1944.



(Above) The offset protruding bomb aimer's sighting panel, extended under nose gun turret, and engine oil cooler intakes on the wing leading edges identify this as a Blenheim Mk V bomber. The small round window behind the bomb bay is a camera window for use with a hand held aerial camera.





Specifications

Bristol Blenheim Mk V

Wingspan
Length
Height
Empty Weight
Maximum Weight
Powerplants

56 feet 1 inch
43 feet 11 inches
12 feet 10 inches
11,000 pounds
17,000 pounds

Two 950 hp Bristol Mercury
XXV air cooled radial engines.

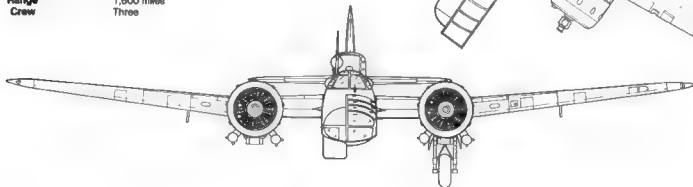
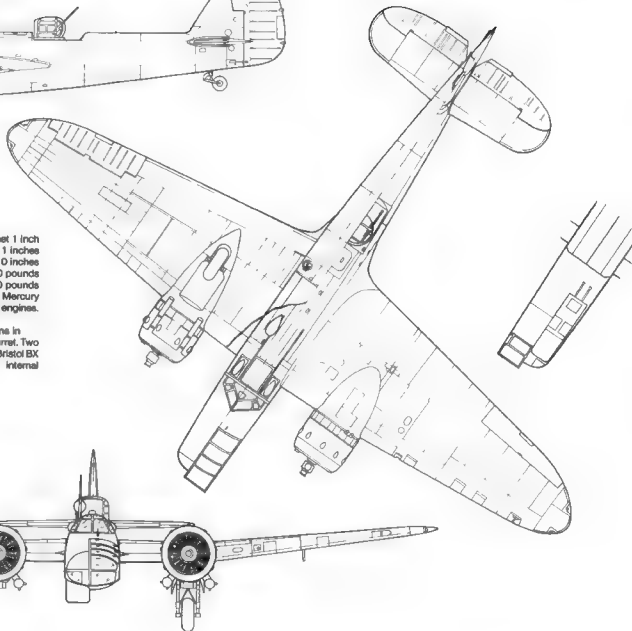
Armament

Two .303 Browning machine guns in
faired under nose Frazer Nash turret. Two
.303 Browning machine guns in Bristol BX
dorsal turret. 1,000 pound internal
bomb load.

Performance

Maximum Speed
Service ceiling
Range
Crew

260 mph
31,000 feet
1,800 miles
Three

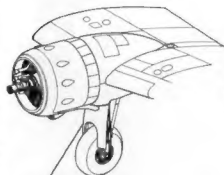




(Above) Ground crews work on the port engine of a Blenheim Mk V of No 13 Squadron in North Africa during late 1942. The bulge in the upper nose canopy is believed to be from relocating the TR1154/55 radio from its original position in the center fuselage to the nose.

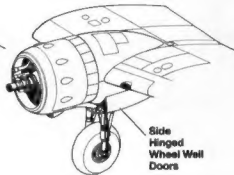
Undercarriage

Blenheim Mk IV



Front Mounted
Undercarriage Cover

Blenheim Mk V



Side
Hinged
Wheel Well
Doors

(Below) A Blenheim Mk V of No 310 Ferry Training/Overseas Delivery Unit at Foggia Main airfield during the summer of 1944. It is believed that EH403 was never assigned to an operational unit before being retired in August of 1944.



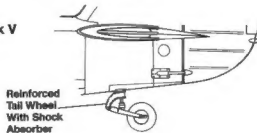


(Above) A number of Blenheim Mk Vs were delivered to the Turkish Air Force from RAF stocks during 1942. The twin gun barrels of the Frazer Nash under nose turret can be seen protruding from under the nose between the undercarriage legs. Turkish Blenheims had Red rudders with a White crescent and star.

Blenheim Mk IV



Blenheim Mk V

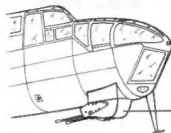


(Below) Two Blenheim Mk IVs flank a Blenheim Mk V of the Portuguese Air Force. The Mk V featured a flatter 'duck bill' nose profile, lengthened under nose gun turret installation, and side hinged undercarriage doors. All three aircraft are fitted with Vokes air filters on the carburetor air intakes.



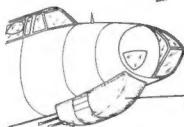
Under Nose Turrets

Blenheim Mk IV



Fraser-Nash
FN-54N

Blenheim Mk V



Paired Fraser-Nash
Twin .303 Browning
Machine Gun Turret

(Below) Indian Air Force personnel unload medical supplies from a Blenheim Mk V of No 34 Squadron. No 34 Squadron operated a number of Blenheim Vs between late 1942 and March of 1943 for operations against the Japanese. The markings are an early variation of South East Asia Command (SEAC) markings with the Red deleted from the roundels and fin flash and the White areas overpainted in Light Blue.



(Above) This Blenheim MK V has had the under nose gun turret removed. AZ881 served out her career in the training role assigned to No 54 Operational Training Unit and No 12 Pilots Flying Unit (PAFU) before being scrapped in March of 1945.



A desert camouflaged Blenheim Mk I of No 211 Squadron over Greece during late 1941. RAF Blenheims operated alongside Blenheims of the Royal Hellenic (Greek) Air Force during the short campaign in Greece.



This Blenheim Mk V of No 8 Squadron based at Aden on the Red Sea during 1943 carries the maritime camouflage developed for aircraft engaged in anti-shipping and maritime patrol duties.

